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ABSTRACT

This report examines the effects of discontinuing Compensatory Education (CE) services. Three reasons for discontinuation of services are identified: (1) about 60 percent of the students were no longer qualified due to high achievement; (2) 25 percent of the programs lost funding; and (3) the remaining percentage reflected promotion of students to grades which had no CE programs. Chapter one provides information on reading and math programs, and on achievement levels of students according to their relationship to CE and according to why their services were discontinued. Chapter two assesses the educational services offered to students following termination of CE. Achievement growth after termination of CE is analyzed in chapter three. Finally, chapter four interprets the findings on achievement growth. Four appendices provide supplementary data for each of the chapters. (Author/ML)

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REPORT # 11:
THE EFFECTS OF DISCONTINUING COMPENSATORY-EDUCATION SERVICES

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TECHNICAL REPORT # 11 FROM THE STUDY OF THE SUSTAINING EFFECTS OF COMPENSATORY EDUCATION ON BASIC SKILLS

PREPARED FOR THE OFFICE OF PROGRAM EVALUATION, U.S. DEPARTMENT OF EDUCATION

BY

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A REVIEW OF THE SUSTAINING EFFECTS STUDY AND AN OVERVIEW OF THE PRESENT VOLUME

REVIEW

In response to questions about educational policies, SDC and its subcontractors are studying compensatory education (CE); its nature, quantity, and environment; its sustained effects; and its generality, in a large study called: The Sustaining Effects Study. This thorough study will result in a series of reports from the following substudies:

The Longitudinal Study. In the Longitudinal Study, the growth of children in reading, math, functional literacy, and attitudes toward school were assessed in the fall and spring for three consecutive years. The amount and kind of instruction in reading and math was also determined for each student. In addition, teachers and principals reported on their practices of instruction and teaching. Thus, it was possible not only to assess student growth over a three-year period, but to relate this growth to the instruction.

The schools in the study were drawn from three different groups. The *Representative Sample* of schools is a sample carefully drawn to represent all of the nation's public schools that have some of the grades one-through-six. A second group of schools, the *Comparison Sample,* is composed of schools that have large proportions of students from poor homes but do not receive special funds to offer CE services. The third group is the *Nominated Sample,* composed of schools nominated because their educational programs had promise of being effective for low-achieving students. During the first year of the study, data were collected from 328 schools and about 118,000 students.

The Cost/Effectiveness Study. Information was obtained on the resources and services to which each student was exposed during reading and math instruction. Cost estimates were generated on the basis of this information. Because the effectiveness of the instructional programs is being determined in the Longitudinal Study, it will be possible to relate the effectiveness to the cost of each program.

The Participation Study. The purpose of the Participation Study was to determine the relationships among economic status, educational need, and instructional services received. The educational achievement of the students and the services they received were obtained in the Longitudinal Study, and the refined measures of economic status were obtained in the Participation Study. Visits were made to the homes of over 15,000 randomly selected students from the schools in the first-year *Representative Sample*. During the visits, information was col-

lected on the economic level of the home and on the parents' attitudes toward their children's school and learning experiences. Thus, the level of student achievement and services could be related to the economic level of a student's home.

The Summer Study. The Sustaining Effects Study also examined the effectiveness and cost-effectiveness of summer-school programs. Information about the summer school experiences of the students was combined with other SES data. The resource-cost model, developed for the regular-year, cost-effectiveness study, was adapted to the needs of the summer-school study.

Successful Practices in High-Poverty Schools. This study is intended to identify and describe instructional practices and contexts that appear to be effective in raising the reading and math achievements of educationally disadvantaged students. In-depth observational and interview data were collected from 55 schools participating in the SES.

THE REPORT SERIES

The major findings of the reports already published are discussed briefly below, along with references to the specific reports from the SES that address them.

A Description of Student Selection for CE as it Relates to Economic Status and Academic Achievement. The Education Amendments of 1974 required several studies to provide the information necessary for the improvement of allocation formulas and other aspects of the Title I program that would be incorporated into the reauthorization of Title I in 1978. One of the major unanswered questions that Congress had posed was concerned with just who received the services provided under Title I funds. Some members of Congress had been considering altering the allocation intentions of Title I to stress economic disadvantagement less and educational disadvantagement more. In addition to any political differences that might be expected to enter into a discussion of such changes, there was also concern about just how different the results would be under several allocation formulas. Clearly, in order to make a decision based on more than simple political expedience, Congress required information on the following questions:

1. How many *economically* needy children *do* and *do not* participate in Title I?
2. How many *educationally* needy children *do* and *do not* participate in Title I?
3. How is Title I participation related to economic and educational need, jointly?
4. What kinds of educational services are received by economically and educationally disadvantaged children that are different from those received by non-disadvantaged children?
5. How are Title I participation and academic achievement related to the children's home environments, their parents' participation in and awareness of their education, and the parents' satisfaction with the educational services that their children receive?

These questions were addressed in Technical Reports #2 (Breglio, Hinckley, and Beal, 1978), #3 (Hinckley, Beal, and Breglio, 1978), and #4 (Hinckley, Beal, Breglio, Haertel, and Wiley, 1979). A brief summary of answers to the five questions is provided below.

1. About 29 percent of poor students participate in Title I compared to about 11 percent of the non-poor students (Report #2). Looking at CE in general, about 40 percent of the poor students and about 21 percent of the non-poor students participate. From these findings, we can see that proportionally more poor students participate in the services than non-poor ones.

2. Using the grade-equivalent metric (one year below expectation for the student's current grade) as the definition for educational disadvantagement, about 31 percent of the low-achieving students participate in Title I, while only 10 percent of the regular-achieving students do (Report #2). For CE in general, the percentages are 46 for low achievers and 19 for regular achievers. Among the regular achievers who participate in CE, many score below the national median on achievement tests.

3. Participation rates for Title I and for CE in general are highest for students who are both economically and educationally disadvantaged (Report #2). Forty-one percent of these students participate in Title I, and 54 percent participate in CE in general. Participation rates are next highest for students who are educationally but not economically needy (26 and 41 percent, respectively), and next highest for students economically but not educationally needy (20 and 28 percent respectively). Only 7 percent of the students who are neither educationally nor economically needy participate in Title I (15 percent for CE in general). These participation rates were interpreted as indicating that the then-current allocation procedures were being complied with, and the intentions of the law were being met fairly well.

4. In comparison to non-poor students, poor students receive more hours of instruction per year with *special* teachers, more hours of instruction in medium- and small-sized groups, fewer hours of independent study, and more non-academic services such as guidance, counseling, health and nutrition (Report #3). The differences are even stronger when poor Title I students are compared to others. Therefore, we can conclude that the distribution of educational services is in line with the intent of the laws and regulations.

5. Two aspects of the children's home environments bore significant and consistent relations to achievement: amount of reading done at home and the educational attainment of the head of the household. Other variables, such as family size, TV-watching behavior, and type of living quarters were not consistently related to student achievement (Report #4). Although most parents (67 percent) know whether their children's schools have special programs for low-achieving students, few (40 percent) knew of Title I and even fewer knew of or participated in the local governance of the Title I program. Poor parents, in general, are less involved in their children's educational programs, have lower expectations of their children's attainments, give lower ratings to the quality of their children's educations, but perceive Title I and other CE programs as being helpful.

Description of the Nature of CE Programs, Characteristics of Participating Students, Schools, and Educational Services. The Participation Study dealt almost exclusively with what has

been called 'selection for receipt of CE or Title I,' without examining too closely what such programs really are and how they differ from the programs regularly offered by the schools. Before we could draw any relationships between selection, receipt, or participation in a CE program and the academic achievement of students, we had to be assured that there really was a program that was distinct, could be specified in some way, and had a reasonable chance of making an impact (otherwise, we would simply be making comparisons on the basis of assignment labels). As will be seen, not only did we analyze data on the basis of assignment labels, but we also considered the actual services received in order to address directly the possible differences between the intention and the actuality.

Based on the analyses of data obtained from about 81,500 students in the Representative Samples, Technical Report #5 (Wang, Hoepfner, Zagorski, Hemenway, Brown, and Bear, 1978) provides the following important conclusions:

- Students participating in CE are lower achievers (mean score at the 32nd percentile) than non-participants (53rd percentile). Seventy percent of the participants were judged by their teachers as needing CE, while only 19 percent of those not participating were so judged. More minority students participate in CE, proportionally, than majority students, but participation in CE has little relationship with student attitudes towards school, early school experiences, summer experiences, or the involvement of their parents in their educational programs.

- Minority, poor, and low-achieving students tend to receive more hours of instruction in smaller groups and by special teachers, and receive more non-academic services, but their attendance rates are generally lower too, so they do not take maximum advantage of the special services provided.

- The useful predictors of whether or not a student is selected to receive CE are his/her teacher's judgment of need and participation in CE in the previous year. When these variables are considered, achievement scores, non-English language spoken in the home, and economic status contribute little more to the prediction.

- About two-thirds of the students participating in CE in 1975-76 participated in the 1976-77 school year also.

- CE students in general and Title I students in particular receive more hours of instruction per year than non-CE students. The CE students also receive more hours of instruction from special teachers. Among CE students, Title I students receive the greatest number of hours of instruction, more frequently with special teachers, and in small instructional groups. There are no significant and consistent differences between CE students and non-CE students with regard to their teachers' instructional sub-grouping practices, use of lesson plans, extent of individualization of instruction, frequency of feedback, or assignment of homework.

- Students receive between 5 to 9 hours of reading instruction per week, decreasing steadily with higher grades, and between 5 and 6 hours of math instruction per week, fairly constant over all grades.

- CE services are delivered during regular instructional hours with different kinds of

activities for the participants (so that, in effect, they 'miss' the regular instruction received by their non-participating peers).

- Title I schools have higher average per-participant CE expenditures in reading and math than do schools with other CE programs. The average Title I per-participant expenditure is about 35 percent of the average per-pupil regular (base) expenditure.
- Schools receiving CE generally have larger enrollments, higher concentrations of poor students and low-achieving students, and students with less educated parents. These schools have greater administrative and instructional control by their districts and have higher staff-to-student ratios.
- Schools that select higher percentages of regular-achieving students for receipt of CE services have larger percentages of minority and poor students, probably reflecting their tendency for saturation of CE programs.
- Most districts use counts of students receiving reduced-price lunches, and counts of aid to families with dependent children, to determine school eligibility, while most schools select students on the basis of standardized achievement tests, frequently augmented by teacher judgments. Similar selection criteria are employed by non-public schools.

Cost-Effectiveness of Compensatory Education. In its deliberations for the reauthorization of Title I, Congress also wanted information on the effectiveness of the Title I program relative to its cost. While it appears eminently sensible to ask the question of cost-effectivness, it is difficult to provide the answers in a manner that will be interpreted correctly. By analogy, the results of a cost-effectiveness study are likely to be that 'it's more cost effective to miss a bus than a taxi.'

In the study of cost-effectiveness of CE, efforts were made to preclude such enigmatic conclusions and, at the same time, to make cost estimates on a sounder basis than in the past. In Technical Report #6, Haggart, Klibanoff, Sumner, and Williams (1978) developed and presented a resource-cost model that translates the measures of resource exposure into estimates of standard dollar costs for each student's instructional program. The overall strategy for estimating costs provides a dollar metric that reflects the measure of individual resource exposure, accommodates interregional price differences, is insensitive to the differential effectiveness of purchasing departments in obtaining the best buys, and is sensitive in discerning intra-classroom differences among the instructional programs on an equitable basis that is not confounded with other economic issues.

Using the resource-costs, CE students in general, and Title I students in particular, were found to be offered substantially higher levels of educational resources, and hence more costly programs. Participation in CE differentiates the resource-costs for services offered much more than do poverty, achievement level, race, or any other characteristics.

In Technical Report #7, Sumner, Klibanoff, and Haggart (1979) related resource-costs to achievement to arrive at an index of cost-effectiveness. The results of the analyses were nonetheless subject to the invidious interpretations suggested by the analogy above. Due to the low-achievement levels of the children selected for CE and their relatively slow rates of

achievement growth, the increased cost associated with CE appeared to be misspent (in the same way that money for severely ill and terminal patients appears to be not as effectively spent as it is for mildly ill patients). It is important to point out, however, that the appearance may not tell the true story. Because we can't obtain truly appropriate comparison groups, we don't know what would have happened to the achievement growth of the CE students if they had not participated. Based on the comparison groups we could form, however, CE programs did not appear to have an advantage over regular programs in terms of cost-effectiveness.

The Effectiveness of Summer-School Programs. The SES also studied the results of attendance at summer school, because Congress had an interest in knowing if such attendance were the key to the prevention of the assumed progressive achievement-deficit of low-achieving students. If we could find that attendance at summer school had positive academic effects insofar as the attendees didn't 'fall back' to the achievement levels of previous years, then Congress would want to consider increased funding for or advocacy of summer instruction in the new authorization for Title I.

Technical Report #8 (Klibanoff and Haggart, 1979) shows that attendance at summer school has little or no effect on the academic growth of the students who attend, especially the low-achieving students. Because the findings are based on the study of summer schools as they presently exist (and the evidence is strong that they do not offer intensive academic experiences), the non-positive findings should not be interpreted as an indictment of summer school, as such, but an evaluation of the way they are presently organized and funded. Nevertheless, when instructional services delivered in summer schools were investigated, none seemed particularly effective in improving students' achievement growth.

As a by-product of the study of summer schools, we addresed the hypothesis of 'summer drop-off,' a hypothesis advanced to explain the presumed widening achievement gap between regular and CE students. Essentially, this hypothesis states that CE students lose much more of their previous year's learning during the summer recess than do regular students (with a consequent implication that summer school might reduce or eliminate the relative loss for CE students). Data collected in the SES fail to support any of the suppositions and implications of the summer drop-off hypothesis: CE students do not suffer an absolute 'drop-off' (although their achievement growth over the summer is less than that for regular students). In any event, attendance at summer school does not have much of an effect.

(Technical Report #9, like Technical report #1, which describes the sampling procedure, is a resource book. It identifies all the variables and composites that have been selected or invented for use throughout the SES. All measures and scales are presented and rationalized. In addition, Report #9A serves as a companion volume. In it are published all of the data collection instruments used in the SES except for a few that are constrained by copyright.)

The Effectiveness of Compensatory Education and the Effects of Instructional Services on Achievement Growth. The most important objectives of the SES are to perform a national evaluation of the effectiveness of CE and to examine the relationship of educational development to instructional services and programs. The findings from previous evaluations of CE have not been favorable and, indeed, were often inconclusive owing to the questionable validity of data and to the lack of a representative sample. Earlier studies also failed to present

a complete picture of the effects of CE because they did not involve all elementary grades and paid little attention to math programs. The SES was designed to overcome the shortcomings of previous studies.

In Technical Report #10 (Wang, Conklin, Bear, and Hoepfner, 1981), educational development was examined with the first-year SES data to assess the effects of CE on the achievement growth of its participants. Our primary aim was to determine whether CE students had made greater fall-to-spring progress than expected, such that at the end of the school year they would be closer to their non-disadvantaged peers than they would be if CE had not been provided. If so, then there would be some evidence that CE had helped to narrow the anticipated achievement gap. However, an evaluation of CE should not merely assess its effectiveness. We went further to determine the underlying mechanisms to explain CE effects so that effective services can be provided to assist CE students to improve their achievements. We were especially interested in determining the role of instructional services in effecting achievement growth because they are the variables most directly regulated in CE policy. Additionally, the relationships between achievement growth and other characteristics of the educational processes (e.g., school environment, characteristics of instructional personnel, and teacher's classroom practices) were also examined.

The one-year analysis shows that during the school year, CE had positive impacts on achievement growth in reading, primarily in the lower three grades, and in math in all grades. The ways in which these observed effects come about, however, are not clear, and the beneficial effects, while detectable, are not large. Specific findings from this report are summarized below.

- Overall positive CE effects on the achievement growth of students are demonstrated in both reading and math. The supportive evidence for such effects is less clear in reading than in math. In reading, the positive effects were observed mostly in the first three grades and, later, in grade 6. In math, some effectiveness was shown in all grades but to different degrees.

- More consistently positive CE effects were obtained for Title I than for other CE programs. In fact, evidence for positive effects is often obtained for Title I students, but only infrequently for students who participate in non-Title I CE programs.

- The effects of previous participation in CE on achievement growth during the current year vary with grades. Some evidence shows continuing CE effects over consecutive years. On the other hand, other evidence indicates that the beneficial effects of CE may be diminished or may not be continued for students who repeatedly receive CE.

- The analysis with structural-relation models shows that CE students tend to receive more special instruction (by special teaching staff or in small groups) but less regular instruction (by classroom teachers in medium or large groups) in comparison with non-CE students who were judged as needing CE. However, evidence for positive effects of special instruction on achievement growth is sparse. Thus the results do not support the expectation that more intensive instruction will directly help reduce the achievement gap between CE student and their non-disadvantaged peers.

- The concept of a 'critical level of effort' for narrowing the achievement gap between

the disadvantaged and non-disadvantaged students cannot be substantiated by the one-year analysis. The data frequently do not support an expectation of increasing return for increased level of instructional effort.

- The amount of regular instruction and tutor-independent work shows some positive, but modest, effects on achievement growth. In contrast, the amount of special instruction does not often contribute to the explanation of achievement growth.
- Greater experience in teaching is related to higher student growth.
- For both reading and math, a high concentration of CE students within a school is a favorable condition for improving achievement growth, especially in the lower two grades. On the other hand, a school's concentration of low achievers often proves to be unfavorable to achievement growth. Unfortunately, the two conditions tend to exist in the same schools.
- In both reading and math, disturbances in instruction tend to be unfavorable conditions for learning in the upper grades but not in the earlier grades.
- Frequency-of-feedback regarding student progress sometimes relates positively to achievement growth.
- Few systematic and meaningful differential effects on achievement growth by student characteristics were obtained. Further, none of the relationships was strong, and consistency over all grades is rare.

Studies Still to Be Done. The remaining reports, yet to emanate from the SES, will address the general effects of educational practices on raising students' achievement levels, with special attention paid to the practices found in CE programs in general and in Title I programs in particular. Impact analyses will either be based on three-year longitudinal data or will be based on in-depth observations and interviews. The extensive achievement data collected from overlapping cohorts of students in the three years will be utilized to describe the pattern of educational growth over the years for various groups of CE and non-CE students. Analyses of the three-year longitudinal data will allow us further to examine the sustained effects of CE and help us to determine if the presumed phenomenon of gap-widening between the disadvantaged and non-disadvantaged student indeed exists. Using multiple approaches to the evaluation of CE, the SES strives to uncover in a reliable manner the effects and effectiveness of the nation's efforts in compensatory education.

OVERVIEW

The idea that compensatory education (CE) will have a strong positive effect on the achievement growth of the educationally most disadvantaged children contains the seeds for conflict in its implementation: if the CE is effective, then the students receiving it will soon no longer be most in need of it and therefore will no longer be qualified to receive it. When the CE services are discontinued, their presumed effects might be expected to disappear, so that the children may revert to their earlier low-achieving state and become qualified for CE anew. This 'revolving-door' possibility has been of great concern at the federal level (GAO, 1975) and has resulted in alterations in the laws (PL 95-561, Section 123 of ESEA, Title I) and

regulations so that children who receive CE services in one year are not particularly likely to have them discontinued the next.

This report seeks to enlighten similar policy decisions by determining:

- How many students have their CE services discontinued and for what reasons.
- If the regular services offered to the former CE students are less intense.
- If the former CE students revert to old or lower rates of achievement growth.
- What non-CE services are likely to prevent the presumed reversion.

Our findings indicate that each year about one-third of the CE students have CE services discontinued, mostly due to their (relatively high) levels of achievement. Although these students subsequently received reduced instructional services, their educational growth does not revert to previous low levels or to the levels of current, comparable CE students. No particular instructional services could be identified that account for this continued growth. The tragedy of the disadvantaged young student who becomes deprived of the presumed benefits of CE is a disturbing individual vision not confirmed in our study of large groups.

We estimate that in any one year about one-third of the elementary-school students receiving CE will not receive it the following year. Although this applies to a small percentage of the population (it affects no more than one-twelfth of the student population), it is reasonable to consider that the discontinuation of such services to those students may undermine some of the extra efforts that had been expended on them previously.

The concern for the effects of discontinuation of CE has been expressed most strongly by educators at the district and school levels, who must deal with the human implications most directly. In an attempt to achieve stability of services for students, many mechanisms have been implemented to make it less likely that they will be passed into and out of CE programs repeatedly during their elementary years. The possible effects of discontinuation of CE services, together with the reasons for it, have led us to examine those reasons and to investigate what happens to the instructional services provided, the achievement levels, and the achievement growth of the former CE students, and to search for instructional practices that give promise to maintain their growth.

Why Are Compensatory-Education Services Discontinued?

Three reasons for the discontinuation of CE services were identified for study (discontinuations due to student movement to other schools could not be investigated because students were studied only in their current schools): (1) about 60 percent of the students no longer receiving CE services had them discontinued because they were no longer qualified due to high achievement (presumably with the intention that they would be replaced with students more educationally needy); (2) 25 percent were discontinued from CE because their schools lost CE funding (this was not common for Title I students); and (3) the remaining 15 percent were no longer in CE because they were promoted to grades in which there were no CE programs.

CE programs are generated from many sources; however Title I, and other-federal, state , and district CE programs can all coexist in the same schools. Due to local conditions, these programs can be stopped or started independently of one another, and different services can be discontinued for students for various reasons. Chapter 1 presents a detailed picture of the state of affairs for reading and math CE programs. The tables of that chapter represent the first empirical findings published to date.

The average achievement scores, combining reading and math, for five groups of students are provided below:

Type of Student	Average Achievement Percentile
Regular student who does not receive CE services	53
Student no longer in a CE program	
• Due to high achievement	39
• Due to promotion to a grade without a CE program	30
• Because school no longer has a CE program	31
Student in a CE program	24

By looking at the data in a number of ways, we found the pattern in the table to be consistent: regular students have the highest achievement means, and students currently in CE programs have the lowest. Those whose CE services were discontinued because their achievement was too high do, indeed, have higher achievement means than their peers who have CE services discontinued for other reasons or who remain in the program. While to some, the high rate of discontinuation of CE services may be seen as the result of the success of the services, the higher achievement of the disqualified group can also be seen as the result of retaining only the truly needy students for CE.

How Does a Student's Education Change When Participation in CE Ends?

There are many ways to describe educational programs so that CE students can be differentiated from others. In previous reports from the Sustaining Effects Study, total hours of instruction offered to students was found to provide good differentiation. A resource-cost of the instruction offered, in terms of standard resource dollars, provided an even better differentiation of the services because such costs weigh special services more heavily. Both these indexes, summed over grades and CE funding sources, are provided below for three types of students no longer receiving CE services and two groups of comparison students, for the school year immediately following the discontinuation of CE services.

As can be seen, and as analyses-of-variance confirm, CE students are offered more hours of instruction, and more costly educational services than any other group of students. Regular students are generally offered the fewest hours and the least costly services. Students no

Type of Student	Hours of Instruction Offered Per School Year		Cost of Resources For* Instruction Offered Per School Year	
	Reading	Math	Reading	Math
Regular students in schools with students whose CE services were discontinued	238	175	245	136
Students no longer in CE programs				
• Due to high achievement	242	184	281	172
• Due to promotion to a grade without such a program	226	166	266	150
• Because school lost funding	246	179	295	158
Current CE students in schools whose CE services were discontinued	265	208	420	278

*A cost-weighted composite, explained more fully in Chapter 2

longer in CE programs are offered services in between the two extremes, but closer to those for regular students. The discontinuation of CE results largely in a reduction of those extra services long presumed to characterize CE programs. The services that former CE students get less of are principally instruction in small groups by special teachers, paid aides, and teaching assistants.

How Much Do Former CE Students Grow Academically When They Are No Longer in a CE Program?

A simple way to answer this question is to examine the level of achievement scores for those students at the end of the school year following the discontinuation of CE services. Average reading and math scores are shown below for the various groups of students.

Type of Student	Average Spring Percentiles	
	Reading	Math
Regular students	53.3	50.9
Students no longer in CE programs		
• Due to high achievement	37.0	39.7
• Due to promotion to a grade without such a program	23.4	29.2
• Because school lost funding	27.7	28.1
Current CE students	24.2	27.5

It is also interesting to note how achievement differs, depending on whether the CE program is Title I or some other program.

Type of Student	Average Spring Percentiles	
	Reading	Math
Regular students in schools with CE programs	59.3	55.3
Title I		
• Current Title I students	21.8	26.1
• Students no longer in Title I		
- Due to high achievement	35.2	37.4
- Due to promotion to a grade without such a program or because school lost funding	33.8	37.2
Other-Federal CE		
• Students currently in the other-federal CE programs	30.3	35.8
• Students no longer in the other-federal CE programs		
- Due to high achievement	37.2	45.7
- Due to promotion to a grade without such a program or because school lost funding	42.8	39.0
State/Local CE		
• Students currently in a state/local CE program	28.6	28.5
• Students no longer in a state/local CE program		
- Due to high achievement	39.3	36.9
- Due to promotion to a grade without such a program or because school lost funding	36.3	41.1

The Title I students are indeed the lowest-achieving students. Regardless of CE program, the students no longer in the program are, on average, not the lowest achieving. Students whose CE services were discontinued because of their high achievement, while having higher spring scores in the following year than students still in the CE program, do not have spring scores like the regular students. In fact, their spring scores are closer to those of the CE students than they are to the regular students.

An examination of the spring averages for students no longer in CE because of promotion to a grade without such a program or because their schools lost CE funding, indicates that they are generally doing better than their CE peers.

It's not enough, however, to examine differences among the spring average, because, for some groups, they may only reflect similar differences in the achievement levels that led to the loss of CE in the first place. Therefore, we also examined growth rates over the school year to account for any differences in the fall scores. Regular students have growth rates which, as would be expected, exceed those for CE students, but former CE students show the second greatest improvement, with the rate varying dependent upon the reason that the CE services were discontinued. One additonal contrast is of interest: students no longer in CE for any reason show greater growth during their first year out of CE than they did in the previous year, when they were in a CE program.

We can conclude that for students who for any reason are no longer in CE:

- They are not achieving at the rates of regular students, so they are accumulating an achievement deficit.
- They are achieving at rates equal to or higher than their CE peers, so loss of CE services is not causing their growth to plummet below that of their CE peers.
- They are achieving at rates slightly greater than the rates they achieved in the year when they were CE students, so loss of CE services seems not to have seriously reduced their achievement growth.

These conclusions lend themselves easily to comprehensive inferential explanations that conclude either that CE services are effective or that they have no impact at all (it is reasonable to conclude that CE services are not harmful to students). To know which conclusion has the greater probability of being the correct one, we must refer to data presented in Report #10 of this series. Those data indicate only weak and inconsistent effects of CE services in promoting achievement growth, so our findings are best explained by the supposition that students who are discontinued from CE tend to be among the highest of the low achievers, and discontinuation of their CE services doesn't adversely affect their achievement growth.

What Instructional Services Affect the Achievement Growth of Former CE Students?

Finally, a search was made among all grades, CE funding sources, and reasons for discontinuation to find services that are effective in improving the growth of the former CE students. We concluded that there is no set of instructional services and experiences that is particularly effective in improving academic growth. Some of the 14 services and experiences studied did have significant relationships to growth. The relative frequencies of these significant findings are provided below, summed over reading and math, grades, funding sources of CE, and reasons for discontinuation.

Educational Service or Experience	Percent of all Significant Relations to Achievement Growth That Were Found
• Hours of instruction with a regular teacher in a group of 21 or more students	3
• Hours of instruction with a regular teacher in a group of 14 to 20 students	10
• Hours of instruction with a regular teacher in a group of 7 to 13 students	5
• Hours of instruction with a regular teacher, individually or in a group of 2 to 6 students	12
• Hours of instruction with a special teacher in a group of 7 or more students	7
• Hours of instruction with a special teacher, individually or in a group of 2 to 6 students	5
• Hours of instruction with a paid aide or teaching assistant in a group of 1 to 10 students	7
• Hours of instruction with a peer tutor or adult volunteer	10
• Hours of independent work using programmed materials	5
• Hours of independent work using non-programmed materials	9
• Summer experience in reading/math	4
• Summer intellectual experience	3
• Teacher experience and training	11
• Individualization of instruction	8

When composite measures are studied in relation to achievement growth, the summary percentages are:

Composite Measure of Educational Service or Experience	Percent of All Significant Relations to Achievement Growth That Were Found
• Total hours of instruction offered	19
• Cost of total resources offered	49
• Summer experience in reading/math	14
• Summer intellectual experience	19

The data in the lists above provide us with no basis for prescribing maintenance programs emphasizing one or more of the service categories over the others.

CHAPTER 1. THE INCIDENCE OF DISCONTINUATION OF CE SERVICES

INTRODUCTION

Discontinuation of CE services became an important educational issue when it was reported (GAO, 1975) that districts and schools differed in their interpretations of the Title I requirement to serve the most educationally deprived students. Under one interpretation, as long as the student is among the educationally deprived when entering the program, he/she is retained until reaching an age-appropriate achievement level. Under another interpretation, a student has to remain among the most educationally deprived to be retained in the program; otherwise, he/she is replaced by a student who is more educationally deprived. Under a third interpretation a student is retained in the program even after reaching an age-appropriate level, in the belief that the extension of services is necessary to maintain achievement growth and to reduce possible regression. With these equivocations and upon recommendations from states, districts, and the USOE, Congress clarified the law (Education Amendments of 1978). The amended law emphasizes that Title I funds must be used to meet the needs of students in greatest need, but it provides an exemption (among several) for students who were determined to be in greatest need in a previous year but no longer are, even though they are still educationally deprived. In effect, the amendment officially allows schools and districts to maintain Title I services for students who qualified in the previous year, so that students are not caught in a 'revolving door' of alternating receipt and disqualification. The amended law is responsive to the stability needs of students while allowing administrators to formulate more enduring policies and applications.

It should be remembered that the new amendments were not based on national findings on the results of the different policies on children's achievement growth, but only on findings that there were policy differences and on the consensus that some of the policies could not possibly result in benefits to the students. In order to confirm the wisdom of the amendments, we would have to know the answers to the following questions:

1. Does the first year of participation in Title I result in some advantage to a student's achievement growth? (If participation has no positive effect, discontinuation is not likely to have a negative one.)
2. How many students have Title I services discontinued, and for what reasons? (If the numbers are small, so is the problem.)
3. What educational services do the former Title I students receive after their Title I services are ended? (If they receive similar services under the guise of being 'regular' students, there is no problem insofar as the educational goals are concerned.)
4. Once the Title I services are discontinued, does the achievement growth of the former participants revert to pre-Title I levels or to the levels of similar educationally-deprived students not participating in Title I? (If it doesn't, then the goals of the program are still being met.)
5. Is there a way to maintain adequate achievement growth for the former Title I students

with the resources available in the regular-education program? (If there is, then we can take advantage of it to reduce any negative consequences of discontinuation.)

The Sustaining Effects Study (SES) is the only study with the data necessary to answer these questions. The answer to question 1 (above) can be found in Report #10 (Wang, Bear, Conklin, and Hoepfner, 1980). The purpose of this report is to provide the answers to questions 2 through 5. We have not limited our study to Title I, however, but separately consider several different CE services in the answers.

The reasons why a student is changed from a CE program to a regular one vary from site to site, and child to child. Questions addressing those reasons, their frequency of occurrence, and the achievement levels of the students involved are explored in this chapter. First we provide some *definitions* that link the concepts of CE and discontinuation of services to the data we collected. This is done so the reader can evaluate the strengths of the data and thereby the validity of the conclusions drawn from them. Once the concepts are made clear, we present *tabulations* of the frequencies of patterns of discontination of CE, so the reader can see the extent of the problem in terms of the numbers of students affected. Following the tabulations we present the *achievement levels* of the students according to patterns of CE discontinuation in order to gain an insight into the seriousness of the problem.

SOME PRELIMINARY DEFINITIONS

The answers to all of these questions first require information about our definition of CE; then about students: those currently in CE, those not in but who were in the previous year, and those who never were in CE (as far as we know). Furthermore, one must know the reasons why CE services were discontinued for the second group of students. In order to answer later questions (such as those in the next chapter about how services differ and those even later about differences in achievement), additional data on each student are necessary. These additional data are discussed, as appropriate, to answer questions.

Selection for CE. Here, and throughout this report, we speak of CE selection or CE students, and never of CE receipt. The reason for this should be made clear at the outset. When one speaks of 'compensatory services,' one speaks of a concept or an intention, and not a readily discernible reality. Unless the CE features of a student's instruction are clearly separated in time or space from regular instruction (and often they aren't), neither student, nor teacher, nor evaluator can specify which service is 'compensatory' and which is 'regular.' The best that can be done, then, is to determine which students have been 'selected' for CE and therefore are CE students. It is important to keep selection and receipt of service conceptually separate and distinct. Only in this way can we use both kinds of variables in an analysis and determine empirically what services typify CE programs. For example, part of this report studies the differences in services received by former CE students and current ones. This report builds on analyses of ongoing programs in which Title I students were found to receive more of the supplemental services that currently compise what we believe 'compensatory' services to be (Report #5, Wang, Hoepfner, Zagorski, Hemenway, Brown, and Bear, 1978). On this basis, we have confidence that selection for CE services is indeed closely related to receipt of them.

Data from Different Years. Figure 1-1 shows how the data bases were constructed to answer the questions of this report. Notice that two data bases were developed: one using data from the 1976-77 school year, and the other using data from the following year. The source as well as the nature of the information are shown in the figure. Because some of the critical information elements were more reliably obtained during the 1977-78 school year (especially at STEP 3), the results of analyses from that year are presented throughout this report. Findings from the 1976-77 school year, which essentially confirm the 1977-78 findings, are frequently provided in appendices.

EXPLORATORY ANALYSES OF CHANGES IN CE SERVICES

Before discussing the reading and math samples defined for later analyses, it is important to examine the entire sample for our understanding of the kinds and frequencies of CE changes (transitions) in the schools. We want answers to the second question posed at the beginning of this chapter: How many students have CE services discontinued, and for what reasons? In Table 1-1, it can be seen that Title I has the lowest incidence of termination of services due to loss of funding, but the highest incidence of termination because the students are no longer qualified (due to high achievement). The former observation is a result of Title I regulations that encourage program continuation (stability) within schools. The latter is probably the result of the fairly well-documented criteria for qualification, an aspect of the Title I program that is not shared by many other CE programs. The other-federal programs have the lowest rate, relatively, of students who continue in the program for more than one year.

Table 1-2 provides information on the programs in which students participate in the year after their CE services are discontinued. In this table we focus on students formerly in Title I and in any Other CE. We can see that relatively few students participate in Other CE programs after discontinuation from Title I, regardless of the reason for the discontinuation. Students whose Other CE services are discontinued are much more likely to be picked up by another program (including Title I), even when high achievement is the reason for the discontinuation. By and large, however, the majority of students dropped from CE programs join the ranks of regular students. (Tables 1-1 and 1-2 have been extracted from cross tabulations of students by CE program and by subject area. The tabulations and some discussion of them can be found in Appendix A.)

Based on the total numbers of students selected for CE in year 1, the percentages of students who were removed from their programs in year 2 for various reasons are shown in Table 1-3 (the percentages are based on data from Table A-3). For Title I reading, the percentage of students retained is quite constant across grades, at about 60 percent, while a little over 30 percent no longer participate because of high achievement, and none lose their Title I selection status because there is no longer a reading program. For Title I math the picture is similar except that some schools lose funding for math programs (or they allocate funds differently). For other-federal and state or local programs the percentages of students retained in the programs are lower than for Title I (i.e., there is greater turnover), but for most grades there are also fewer students terminated because of high achievement. Notice that the percentage of students retained in other-federal programs drops sharply at grade 4 for both reading and math, the drop apparently caused by promotion to the higher grades where such programs are not common. *In summary, student turnover is greater in the non-Title I CE programs*

DATA BASE FOR FIRST YEAR (1976-77)	DATA BASE FOR SECOND YEAR (1977-78)
STEP 1. SELECT OPTIMUM NUMBER OF STUDENTS AND SCHOOLS TO BE STUDIED.	
Select all students with historical data on previous year's CE status. N = 115,487 in 343 schools. (*Note: The schools came from three samples; one representative of schools in the nation, one consisting of schools chosen because their CE programs looked promising, and one of schools serving children from poverty backgrounds but which received no (or very little) CE funds.*)	Select all students with participation data from school years 1976-77 and 77-78. N = 44,508 in 176 schools. (*Note: The number of schools was reduced from the first year to lessen the cost of the study. The schools came from the same three samples described for the first year. The number of students was further reduced by attrition and absences.*)
STEP 2. GROUP STUDENTS ACCORDING TO CHANGES IN CE.	
From teacher responses to the Student Background Checklist*, sort students according to whether they: A. were formerly CE students, but not now. B. were formerly CE students and still are. C. are not now CE students and never were. D. were not formerly CE students, but now are.	From teacher responses to the Compensatory Education Roster*, and separately by three CE funding sources (Title I, Other-Federal, and State/Local), determine membership in one of the four groups as defined for the first year.
STEP 3. FOR STUDENTS WHOSE CE SERVICES WERE DISCONTINUED, GROUP BY REASON.	
From teacher responses to the Student Background Checklist*, sort students by the reason their CE services were discontinued: A. because of high achievement. B. because school lost funding. C. because of promotion to a grade without such a program.	From school-wide responses to the Compensatory Education Roster* for both years, determine if the school lost CE. From grade-wise responses within schools, determine if the grade has no such program, even though the school does. Then group the students whose CE services were discontinued into either of those groups (see groups B and C for first year). The remaining students are defined by logical elimination as having CE discontinued because of high achievement.
STEP 4. DO GROUPINGS SEPARATELY FOR READING AND FOR MATH.	
Do steps 1 through 3 separately for the two subjects, as patterns of CE services differ between them.	Do steps 1 through 3 separately for the two subjects, as patterns of CE services differ between them

*Instruments and their item-response characteristics are described in Report #9 (Hemenway, Wang, Hoepfner, Bear, and Smith, 1978).

Figure 1-1

Construction of the Data Bases for This Report

Table 1-1

Numbers of Students Whose CE Services Were Discontinued, by Reason for Discontinuation, CE Funding Source, and Subject

Funding Source and Transition Category	Reading	Math
Title I		
Title I Student in year 1; no longer qualified in year 2	2,773	1,630
Title I Student in year 1; school lost funding in year 2	0	383
Title I Student in year 1; promoted out in year 2	424	195
Title I Student in year 1; discontinued (sub-total)	3,197	2,209
Title I Student in both year 1 and in year 2	5,048	2,962
Newly selected for Title I in year 2	4,159	3,539
Not selected for Title I in either year 1 or year 2	31,239	34,933
TOTAL	43,643	43,643
Other-Federal CE		
Other-Federal Student in year 1; no longer qualified in year 2	385	298
Other-Federal Student in year 1; school lost funding in year 2	735	454
Other-Federal Student in year 1; promoted out in year 2	354	347
Other-Federal Student in year 1; discontinued (sub-total)	1,474	1,099
Other-Federal Student in year 1 and in year 2	335	284
Newly selected for Other-Federal in year 2	764	264
Not selected for Other-Federal CE in either year 1 or year 2	40,916	41,842
TOTAL	43,489	43,489
State/Local CE		
State/Local Student in year 1; no longer qualified in year 2	964	568
State/Local Student in year 1; school lost funding in year 2	1,624	990
State/Local Student in year 1; promoted out in year 2	307	498
State/Local Student in year 1; discontinued (sub-total)	2,895	2,056
State/Local Student in year 1 and in year 2	1,591	1,062
Newly selected for State/Local CE in year 2	2,947	2,753
Not selected for State/Local CE in either year 1 or year 2	36,050	37,612
TOTAL	43,483	43,483

Note: Total numbers for the different funding sources are different due to differential rates of missing data. As can be seen, Title I has the lowest rate of missing data, probably because of that program's requirements for record keeping.

than in Title I, and most of it can be attributed to the ending of programs rather than student achievement growth.

As noted above, a frequent reason that students' CE programs are changed or discontinued is that they are promoted into grades in which the programs are not offered. It is of some interest, then, to examine the patterns of changes grade by grade. In Table 1-4 we present

Table 1-2

Numbers of Students Whose CE Services Were Discontinued by Reason for Discontinuation and Subsequent Status

Discontinued CE Service and Subsequent Status	Reason for Discontinuation: Achievement Was Too High	Promoted Out	School Lost Funding
Students with Title I reading discontinued who subsequently became:	2,773	424	0
Regular reading students	2,380	363	0
Other-CE reading students	393	61	0
Students with Title I math discontinued who subsequently became:	1,630	196	383
Regular math students	1,420	176	351
Other-CE students	210	20	32
Students wih other reading CE discontinued who subsequently became:	1,329	633	2,212
Regular reading students	820	285	870
Any-other CE reading students	509	348	1,342
Students with other math CE discontinued who subsequently became:	847	836	1,335
Regular math students	574	492	375
Any-other CE math students	273	344	960

Note: In order to keep this table straightforward, we have not tabulated cases where students are discontinued from a reading program and are subsequently found in a math program. For tabulations of other CE services, where students were discontinued from different programs for different reasons, priority was given to high achievement, then promotion, and lastly school funding. These two rules eliminated any duplicate tabulations of the same students.

the percentages of students whose CE services were discontinued for each reason, separately for reading and math programs, and for the three major funding sources. This table was extracted from the complete tabulations of Table A-3 in Appendix A, and is similar to Table 1-3, except that Table 1-3 considers all CE students, while Table 1-4 considers only those whose CE services were discontinued.

It is clear from Table 1-4 that patterns of discontinuation of services are different for the different CE programs. Most students who lose Title I services do so because their achievement is too high, while most students losing Other CE services do so because their schools lost funding. Grade 3 seems to be the last grade of CE for many students, as the percentages of students no longer participating in CE because they were promoted to a grade without such a program increases at grade 4. The increase is most noticeable for other-federal CE programs.

Another useful perspective is obtained by examining the year 2 CE students in terms of how many are continuing in their programs. Table 1-5 contains percentages of those students

Table 1-3

Percentages of CE Students in Year 2, by Subject, CE Funding Source, Reason for Termination, and Grade

Reason for Discontinuation	Grade 1	2	3	4	5	6
			Reading			
Title I CE						
Achievement too high	30	36	35	33	31	33
Promoted out of program	7	2	3	10	5	6
School lost funding	-	-	-	-	-	-
(Retained in program)	(63)	(62)	(62)	(57)	(64)	(61)
Other-Federal CE						
Achievement too high	15	33	31	6	19	15
Promoted out of program	1	1	1	59	22	21
School lost funding	56	38	37	28	53	51
(Retained in program)	(28)	(28)	(31)	(7)	(6)	(13)
State/Local CE						
Achievement too high	10	20	20	25	22	24
Promoted out of program	14	7	5	7	6	9
School lost funding	43	38	37	36	37	30
(Retained in program)	(33)	(35)	(38)	(32)	(35)	(37)
			Math			
Title I CE						
Achievement too high	32	36	30	33	31	26
Promoted out of program	4	2	1	4	4	8
School lost funding	16	6	11	5	6	8
(Retained in program)	(48)	(56)	(58)	(58)	(59)	(42)
Other-Federal CE						
Achievement too high	29	43	38	8	8	7
Promoted out of program	4	1	0	73	27	21
School lost funding	39	19	23	14	61	56
(Retained in program)	(28)	(37)	(39)	(5)	(4)	(16)
State/Local CE						
Achievement too high	7	8	16	15	24	34
Promoted out of program	25	19	14	22	12	8
School lost funding	28	38	30	30	35	25
(Retained in program)	(40)	(35)	(40)	(33)	(29)	(33)

selected for the same program in the previous year. Title I students continue in their programs more often than students in Other CE programs, especially at the higher grades. This finding reflects not only the greater stability and implementation of Title I programs, but also the fact that the Title I students are the lowest of the low achievers (see Hinckley, Beal, and Breglio, 1978; Wang, Hoepfner, Zagorski, Hemenway, Brown, and Bear, 1978), and are therefore more likely to be repeatedly selected for CE.

Table 1-4

Reasons Why CE Services Were Discontinued, by Grade and CE Funding Source

Reason for Discontinuation of CE Services	Percentages of Students Whose CE Was Discontinued*						
	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6	Total
Reading							
Title I							
Because of high achievement	80	96	92	77	87	84	87
Because of promotion	20	4	8	23	13	16	13
Because school lost funding	0	0	0	0	0	0	0
(Total number discontinued)	(87)	(629)	(682)	(795)	(507)	(497)	(3,197)
Other-Federal CE							
Because of high achievement	21	46	46	7	19	17	26
Because of promotion	2	1	1	63	24	24	24
Because school lost funding	77	53	53	30	57	59	50
(Total number discontinued)	(52)	(292)	(265)	(362)	(259)	(244)	(1,474)
State/Local Ce							
Because of high achievement	15	31	32	36	34	38	33
Because of promotion	21	10	8	11	9	15	11
Because school lost funding	64	59	60	53	57	47	56
(Total number discontinued)	(72)	(625)	(634)	(692)	(520)	(352)	(2,895)
Math							
Title I							
Because of high achievement	61	81	71	78	77	62	74
Because of promotion	8	4	3	10	9	20	9
Because school lost funding	31	15	26	12	14	18	17
(Total number discontinued)	(51)	(433)	(437)	(510)	(391)	(387)	(2,209)
Other-Federal CE							
Because of high achievement	40	68	62	8	8	9	27
Because of promotion	5	2	1	77	28	25	32
Because school lost funding	55	30	37	15	64	66	41
(Total number discontinued)	(20)	(181)	(169)	(296)	(215)	(218)	(1,099)
State/Local CE							
Because of high achievement	11	12	26	22	17	50	28
Because of promotion	42	30	23	33	50	13	24
Because school lost funding	47	58	51	45	33	37	48
(Total number discontinued)	(36)	(408)	(358)	(481)	(439)	(334)	(2,056)

*Base frequencies from which percentages were computed can be found in the first three rows of the respective section of Table A-3 in Appendix A.

Table 1-5

Percentages of Year 2 CE Students Who Continued in the Same Program from Year 1

Kind of CE Program	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
Title I reading	71	48	55	54	60	57
Other-Federal reading	69	40	42	13	9	29
State/Local reading	51	34	42	41	33	25
Title I math	41	41	41	48	48	51
Other-Federal math	89	77	73	20	17	34
State/Local math	36	26	28	34	24	26

Some students do not continue in a single CE program, but are in different programs each year. Tables 1-6 and 1-7 provide tabulations of some of those students. Table 1-6 shows the percentages of the students in a CE program both years, who were also in another CE program in Year 1. It can be seen that sizeable percentages of students participate in more than one CE program, but no one program characteristically picks up students discontinued from another one.

Table 1-6

Percentages of Students in CE Both Years Who Also Were in Another CE Program in Year 1

Kinds of CE Programs	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
Title I reading both years:						
Other-Federal reading in year 1	22	10	11	8	11	11
State/Local reading in year 1	6	20	20	22	19	18
Other-Federal reading both years:						
Title I reading in year 1	65	41	47	29	12	53
State/Local reading in year 1	25	33	37	25	12	53
State/Local reading both years:						
Title I reading in year 1	11	41	48	54	40	53
Other-Federal reading in year 1	11	9	9	7	43	59
Title I math both years:						
Other-federal math in year 1	2	6	7	9	2	16
State/Local math in year 1	0	24	23	25	27	23
Other-Federal math both years:						
Title I math in year 1	12	42	48	0	9	26
State/Local math in year 1	25	15	9	25	9	50
State/Local math both years:						
Title I math in year 1	4	48	49	59	52	53
Other-Federal math in year 1	16	10	11	6	66	72

Table 1-7 presents information on past CE participation for the students who started a new CE program in year 2. The students tabulated in this table have been switched from one program to another. We can see, for example, that about one quarter of the new Title I students had been in a state or local program the preceding year, while very few had been in an other-federal program.

Specifically examining the incidence of participation in two CE programs simultaneously, Table 1-8 shows the percentages of those students by program and subject. We can see that double participation is more common at the early grades. In reading, other-federal and state or local programs are rarely participated in concurrently; and in math, Title I and other-federal programs rarely are.

Table 1-7

Percentages of Students Starting a CE Program in Year 2 Who Were in Some Other CE Program the Previous Year

Kinds of CE Programs	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
Title I reading in year 2:						
Other-Federal reading in year 1	0	5	3	8	5	5
State/Local reading in year 1	26	19	21	26	30	23
Other-Federal reading in year 2:						
Title I reading in year 1	56	10	18	15	6	26
State/Local reading in year 1	33	15	9	16	1	18
State/Local reading in year 2:						
Title I reading in year 1	23	12	17	28	25	24
Other-Federal reading in year 1	9	5	6	18	7	5
Title I math in year 2:						
Other-Federal math in year 1	11	5	3	8	2	5
State/Local math in year 1	14	18	18	24	24	26
Other-Federal math in year 2:						
Title I math in year 1	0	3	5	8	2	19
State/Local math in year 1	100	30	22	21	39	19
State/Local math in year 2:						
Title I math in year 1	4	7	12	12	17	16
Other-Federal math in year 1	4	5	5	8	7	6

Table 1-8

Percentages of CE Students Who Were Also in Some Other CE Program the Same Year

Kinds of CE Programs	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
Title I reading students:						
Also selected for Other-Federal reading	9	3	4	1	0	0
Also selected for State/Local reading	6	16	16	19	18	21
Other-Federal reading students:						
Also selected for Title I reading	62	21	25	9	3	5
Also selected for State/Local reading	0	6	4	6	5	11
State/Local reading students:						
Also selected for Title I reading	17	34	35	63	31	34
Also selected for Other-Federal reading	0	2	1	1	1	2
Title I math students:						
Also selected for Other-Federal math	0	3	3	0	1	1
Also selected for State/Local math	24	22	20	18	15	16
Other-Federal math students:						
Also selected for Title I math	11	25	33	5	9	13
Also selected for State/Local math	11	13	17	37	34	28
State/Local math students:						
Also selected for Title I math	39	34	34	38	24	26
Also selected for Other-Federal math	1	2	3	4	3	5

Finally, it is useful to examine students' achievement levels prior to changes in their educational programs. Table 1-9 presents average achievement levels for reading and math for students continuing and changing their educational programs. The scores are from the spring, year 1 administration of the Comprehensive Tests of Basic Skills (CTBS). Some attrition occurs here, since students who were absent when the CTBS was administered were eliminated from the analysis. Bias of the means can result from this kind of attrition if the absent students tend to be lower achievers. As we would expect, the regular students' scores are higher than those of the CE students—both continuing and new ones. It is also apparent that the students whose participation in CE ended because of high achievement in year 2 did *not* score higher initially than those whose CE services were discontinued for other reasons. This finding provides indirect evidence that the CE was effective for those students. (Means for grade 1 have not been recorded in Table 1-9 because the first-grade students having data for both years [632 students] had all been retained in grade 1. This group of retained students had very low achievement scores that would serve only to cloud the important comparisons in the table).

Table 1-9

Mean CTBS Percentile Scores (from Spring of Year 1) by Transition Category and Grade for Year 2

Transition Category	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
			Reading		
Regular students	55.8	54.8	57.0	53.5	53.7
Discontinued from CE:					
Due to high achievement	39.2	35.4	33.0	31.0	29.8
Due to promotion	31.3	20.7	28.2	35.4	35.8
Because school lost funding	38.3	37.4	32.7	31.1	30.0
CE students:					
Continuing in program	26.1	21.7	20.4	20.2	19.4
Started CE in year 2	35.7	32.8	30.2	32.5	30.4
			Math		
Regular students	51.6	50.7	52.2	50.8	51.7
Discontinued from CE:					
Due to high achievement	45.2	38.0	37.8	34.7	36.7
Due to promotion	37.2	41.2	37.0	32.0	29.8
Because school lost funding	42.8	37.2	36.4	32.0	34.3
CE students:					
Continuing in program	29.9	25.2	26.9	23.3	24.1
Started CE in year 2	38.0	34.1	31.0	29.1	32.9

Similar data are presented for year 1 in Table 1-10, but CTBS scores were not available from the previous year (year 0), so scores from the fall of year 1 were substituted. Although these scores were probably uncontaminated by the year 1 instructional experience, they are not strictly comparable to the scores from the previous spring which would have been used to assign students to CE. Although not identical to the corresponding means from year 2, these

data are in agreement with them in important respects. Because the students in grade 1 have not all been retained, their means may validly be compared with those of the other grades and are in line with them. Further, those students terminated from CE because of high achievement (the reason not inferred, as in Table 1-9) initially had higher means than students terminated for other reasons.

Table 1-10

Mean CTBS Percentile Scores (from Fall of Year 1) by Transition Category and Grade for Year 1

Transition Category	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
			Reading			
Regular students	50.5	53.7	54.5	54.8	53.8	54.2
Discontinued from CE:						
Due to high achievement	53.3	45.8	40.8	35.4	30.1	31.7
Due to promotion	27.0	24.9	22.4	23.5	22.0	26.4
Because school lost funding	39.0	40.8	25.8	30.2	22.8	28.9
CE students:						
Continuing in program	33.3	24.4	21.7	19.8	20.2	19.9
Started CE in year 1	26.7	25.7	22.1	25.2	27.0	30.2
			Math			
Regular students	49.3	49.7	50.8	51.7	50.5	51.9
Discontinued from CE:						
Due to high achievement	56.1	46.4	41.0	35.8	34.8	40.7
Due to promotion	34.9	23.9	36.9	24.5	25.2	32.2
Because school lost funding	20.8	26.5	25.0	29.4	25.2	29.4
CE students:						
Continuing in program	35.0	25.6	24.9	22.3	22.2	24.5
Started CE in year 1	28.4	28.3	26.4	24.2	26.4	27.5

It is of interest that the students promoted out of grades with CE reading program have low scores. This seems to imply that lenient promotion policies in the schools allow low-achieving students to be promoted, while the formal CE programs are restricted to their former grades. Students whose schools lost CE programs similarly have their programs end without regard for their levels of need. Students whose CE status is terminated because they no longer qualify for CE have higher achievement means, however, indicating that their removal from CE and their subsequent replacement is not haphazard.

SAMPLES FOR READING AND MATH ANALYSES

For the preceding analyses, the entire sample of students in the SES was used. The special sub-samples of the SES (see Review and Overview) were combined to achieve sufficient numbers of cases in critical comparison groups to support all analyses. Evidence in Report #10 (Wang et al., 1979), showing great overlap among the sub-samples of achievement scores and student characteristics, gave us confidence that combining the sub-samples would not distort the findings or make them less generalizable. The examination of programs and program effects, however, requires separate analyses of data from reading programs and from math programs, so that, for example, changes in reading services and in reading achievement

that coincide with changes in reading programs can be examined without regard to changes in math activities. For the remainder of the analyses, then, separate samples were drawn independently for reading and for math, from each year's master file, described in Figure 1-1.

The methods by which these samples were defined and drawn are documented in Figure 1-2.

DATA BASE FOR FIRST YEAR (1976-77)	DATA BASE FOR SECOND YEAR (1977-78)
STEP 5. CONSTRUCT A MASTER FILE CONTAINING DATA FOR ALL STUDENTS FOR WHOM THERE WERE DATA ABOUT CE PARTICIPATION FOR EACH YEAR.	
Data from the Student Background Checklist provided information for participation in CE in general; not by funding source.	Data from the Compensatory Education Roster had information on participation in CE, separated by funding sources (Title I, other-federal, and state or local).

STEP 6. CREATE CATEGORIES OF STUDENTS, CONSIDERING FUNDING SOURCES FOR CE PROGRAMS AND CHANGES IN PROGRAMS.

To reduce the number of categories to those of some interest, groups were created that emphasized: (1) discontinuation and starting of CE over continuation, and (2) Title I over other-federal over state or local programs. Using these criteria as priorities, the categories generated are:

- *Regular Students* - students who did not participate in CE either year.
- *Title I Students* - students in Title I in both years, and not dropped or added to any other CE programs.
- *Other-Federal Students* - students in an other-federal program for both years, and not selected in either year for Title I or dropped from or added to any other CE program.
- *State/Local Students* - students in state or local CE programs in both years and not in, dropped from, or added to any other CE program.
- *Title I Discontinued* - students dropped from Title I in year 2, and not added to any other CE program in year 2.
- *Other-Federal Discontinued* - students dropped from an other-federal program in year 2, having no change in Title I status, and not added to a state or local program.
- *State/Local Discontinued* - students dropped from a state or local program in year 2, having no change in Title I status or status in an other-federal program.
- *Title I Started* - students newly starting in Title I in year 2, and not dropped from any other CE program.
- *Other-Federal Started* - students newly starting in an other-federal program in year 2, with no change in Title I status and not dropped from any state or local program.
- *State/Local Started* - students newly starting in a state or local program, with no change in Title I or other-federal program.
- *Switched: Title I to Other* - students dropped from Title I in year 1 and then newly selected in year 2 for any other CE program.
- *Switched: Other to Title I* - students dropped from an other-federal, state, or local program in year 2 and newly selected for Title I.
- *Switched: Other to Other* - students added to some non-Title I program(s) in year 2 after having been dropped from some other non-Title I program(s).

Figure 1-2

Construction of Groups for Analysis from the Data Base (A Continuation from Figure 1-1)

Figure 1-2 (Continued)

STEP 7. CREATE FILES FOR ANALYSES, SEPARATELY BY GRADE AND BY SUBJECT.

In order to reduce the number of cases to be processed and to create more balanced statistical designs, without appreciable losses in analytic precision:

A. Draw 100 percent samples of students with changes in their CE programs. (such cases are relatively infrequent, see Table A-3 in Appendix A.)
B. Draw random samples from the more populated categories (regular students and continuing CE students) so that the sizes of the samples would be similar to those in A (above), but not more than 300.

Any particular student can, therefore, be in both reading and math files; the probability of being included in one file being unaffected by inclusion in the other.

STEP 8. CREATE SPECIAL COMPARISON GROUPS OF REGULAR STUDENTS FOR ANALYSES IN WHICH DIFFERENCES IN SCHOOLS AMONG GROUPS MUST BE ELIMINATED.

Two additional groups (subsets) of regular students were created:

- Those enrolled in schools where there were CE students.
- Those enrolled in schools where some students' CE was discontinued.

CHAPTER 2. EDUCATIONAL SERVICES FOLLOWING THE TERMINATION OF COMPENSATORY EDUCATION

The regulations for Title I, by far the largest CE program, specify that CE services are to *supplement* rather than *supplant* regular services, i.e., that students who participate in Title I services should receive something extra. Because the number of hours in the school day is usually not increased for CE students, it is a clear intention that the intensity or quality of the school experience be measurably different for them. In Report #5 (Wang et al., 1978) we have shown that CE students in general, and Title I students in particular, receive more reading and math services that are presumed to have a positive impact on achievement. For example, they receive more hours of instruction, per se, and receive it in smaller groups. Since the focus in this report is on students whose CE is terminated, the question about level of services received is whether these students are, in fact, returned to the same level of services received by the regular students whose ranks they are rejoining. If, for example, the kinds and amount of services received by students went unchanged following termination from CE, that finding would cast a new light on our answers to questions about subsequent changes in achievement level (in Chapter 3 of this report).

In order to investigate the educational services received by former CE students, it is necessary first to specify what services will be considered and how their receipt will be assessed. In the SES we have assumed that the important dimensions of instructional services are duration, instructor, and size of group receiving the instruction. Each of these dimensions is important in understanding the nature of the services received by students. Second, we must specify the nature of the groups to whom the former CE students will be compared. In general, we will want to specify groups that are as similar as possible to the former CE students, so that the comparisons are not contaminated by differences other than CE status.

MEASURES OF EDUCATIONAL SERVICE

The basic measures of services to be used in the analyses of this chapter are derived from items of the Student Participation and Attendance Record for Math (SPAM) and for Reading (SPAR), indicating numbers of hours of instruction received in several classroom contexts. The record for each student was completed by the teacher who had primary responsibility for teaching reading or math to the student. Each of these forms was completed four times in the year for each student for a record week of attendance. Estimates of the year's attendance for each type of instruction were generated from these four measurements. Information on ten kinds of instruction were gathered (where the word "subject" in parentheses indicates reading in the SPAR and math in the SPAM):

1. Hours of (subject) with a regular teacher in a group of 21 or more students.
2. Hours of (subject) with a regular teacher in a group of 14-20 students.
3. Hours of (subject) with a regular teacher in a group of 7-13 students.
4. Hours of (subject) with a regular teacher individually or in a group of 2-6 students.
5. Hours of (subject) with a special teacher in a group of 7 or more students.

6. Hours of (subject) with a special teacher individually or in a group of 2-6 students.
7. Hours of (subject) with a paid aide or teaching assistant in a group of 2-10 students.
8. Hours of (subject) with a peer tutor or adult volunteer.
9. Hours of independent work in (subject) using programmed materials.
10. Hours of independent work in (subject) using non-programmed materials.

In addition, data were collected on student absenteeism, which were combined with the data on instructional services to yield two measures of the student's educational program: the total hours of each type of instruction offered by the school and, when adjusted for absenteeism, the total hours actually received by each student.

One aggregated measure of the intensity of service delivered was derived by summing the number of hours in all service categories to obtain a total number of hours of instruction in each subject. Although we decided to examine this measure, it did not seem likely to be especially sensitive to differences between services of CE and regular students. A measure that could be more sensitive to the level-of-effort of special instructional arrangements is a cost-weighted composite, which takes into account personnel, equipment, and other resources associated with instruction.

This composite is not obtained by examining actual costs at each site; it is constructed by finding a realistic cost for each type of activity (converted to standard dollars in order to eliminate regional cost differences) and applying this cost factor to every activity. The formula for the cost composite was described in detail in Report #6 (Haggart, Klibanoff, Sumner, and Williams, 1978) and will be briefly summarized here:

$$C = P \times Q \times L \times S \times T$$

Where:

C is the cost of the resource delivered to the student, in standard dollars,
P is the price per unit of the resource used,
Q is the quantity of the resource used,
L is the length-of-year factor that adjusts all costs to a yearly basis,
S is a size-of-class factor that distributes shared resources to students, and
T is a time factor accounting for the proportion of the school day allocated to the subject.

The cost-weighted measures are not intended to reflect actual expenditures, but serve, in these analyses, as measures of the intensity of services provided in each subject.

Since, for some purposes, it is useful to know the amount of services *offered*, each of the composite measures just described was computed both in its original form, reflecting the level of services to which the student was actually exposed, and a version that was adjusted by an individual student's attendance factor to estimate the amount offered. In addition to the separate service variables, then, there are four composite measures for these analyses, for each subject.

THE SAMPLES OF STUDENTS TO BE STUDIED

For the analyses of year 1 data we focus on students whose reading or math CE services were terminated at the beginning of that school year (1976-77). These students represent only a small percentage of the total SES sample, as the tables of Chapter 1 clearly show. The terminated students are subset, as explained in Chapter 1, on the basis of the reason reported for their change of status.

The comparison groups needed for the analyses consist of regular students and continuing CE students (students whose services were started in Year 1 were excluded rather than being pooled into any sample). The comparison students were further subset to just those schools that terminated services for one or more students. In this way, the comparison groups consisted of regular students from schools with terminated students, and CE students from schools with terminated students. The use of these subsets minimizes school effects that might otherwise be confounded with the transition categories. We also considered it important to examine a broader set of comparisons in addition to those just described. We did this because our very restricted comparison groups (representing a gain in internal validity) may not represent the population of students whose CE was not discontinued. For this, an additional set of comparison groups, we sampled regular and CE students from all schools with CE programs. (Data from these comparisons are presented in Appendix B.) Although this restriction (to schools with CE) may prevent perfect representativeness in the category of regular students, such schools constitute a less restrictive subset than those with terminated students. The comparability of the two comparison groups (regular and CE students) is enhanced by eliminating the confounding effects introduced if non-CE schools contributed to the sample of regular students.

In order to make these two different subsettings both mutually exclusive and independent (in the sense that the students from a given school had the same *a priori* probability of being included in one of the samples as if the other samples were not drawn), the less restrictive sample (from schools with CE) was drawn first, and the more restrictive sample (from schools with terminated students) was drawn from the remaining sample. In this way we avoided drastically biasing either subsample. The differences between CE schools with and without terminated students might affect the results of analyses, so all analyses were performed with both sets of comparison groups. Important differences in findings could then be identified and discussed.

COMPARISONS OF TOTAL EDUCATIONAL SERVICES

In the logical progression of questions posed in Chapter 1, we now know that the potential problems resulting from discontinuation of CE services are not ignorably small. We can proceed to answer the third question: What educational services do the former CE students receive after their CE services are ended?

We would anticipate that their services ought to be more like the services of regular students than those of CE students (technically, they *are* regular students). Therefore, we need two groups with which to compare the former CE students. Our hypotheses can be expressed as:

Services to CE students	>	Services to terminated students	≥	Services to regular students

In order to buttress our conclusions, analyses were performed using both of our two kinds of comparison samples. That is, one analysis was done based on regular and CE students drawn only from schools with terminated students, and with the three kinds of terminated students (no-longer-qualified, promoted-to-a-grade-with-no-program, and school-lost-funding); and the same analysis was repeated with the same terminated students and the regular and CE students from all schools with CE. In both cases, a factorial analysis was done, with grade and transition category as the two factors. We also defined 'services' as hours of instruction and as the cost-weighted composite, and considered each in terms of what was offered to the students and what they received. The means for services-offered to the students are presented for reading and math in Table 2-1, based on the comparison groups from schools with terminated students. (Comparable, but for services-received, means are presented in Table B-1 of Appendix B, and means for comparison groups at all CE schools can be found in Table B-2).

Comparisons of Services Delivered to Terminated Students With Those Delivered to Regular and CE Students. On the cost-weighted measures, the three discontinued groups are fairly close to the regular students, and clearly lower than the CE students. The differences are less clearcut in the means of hours offered and attended. The results generally support the expectation that services for discontinued students resemble the services for regular students rather closely, and are less intense than the services for CE students.

Whatever the reason for it, the better differentiation of the CE and regular students in schools with discontinued students, as well as the *a priori* fact that these schools provide better matched comparison groups than the more general sample, encouraged us in the use of only the former sample in our analyses. The costs of instruction offered for reading and math (from Table 2-1) illustrate more clearly the differences among the groups (see Figures 2-1 and 2-2). The means for the three kinds of discontinued students cluster around the means for the regular students, and are widely separated from the means for the CE students.

Comparisons of Regular and CE Students. Comparing the services offered to CE students with those offered to regular students, we can see that CE students are offered fewer hours of reading at the early grades, and more at the higher grades but that the CE reading instruction is always more costly. In math, the CE students are always offered more hours of instruction and higher-cost services. (The same comparisons hold for the services received, as reported in Table B-1, and generally hold when the two groups are sampled from all schools with CE, in Table B-2). In all cases, the best differentiation of the two groups is made with the cost-weighted measures, indicating that it is the concentration of special kinds of services rather than the hours of exposure that better reflects CE services.

The CE students from schools with discontinued students tend to have slightly fewer hours of services both offered and attended, but higher resource-costs than the CE students from schools with CE in general. The regular students from the two samples are less clearly

Table 2-1

Average Hours and Costs of Instruction Offered in Year 1 to Students Whose Programs Changed, by Grade

Transition Category*	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
Hours of Reading Instruction						
Regular students	320	304	246	206	189	170
Students terminated due to high achievement	341	289	253	220	195	180
Students terminated due to promotion	290	220	255	210	190	188
Students terminated because school lost funding	260	287	267	235	232	185
CE students	299	295	280	247	235	194
Resource-Cost of Reading Instruction						
Regular students	350	341	265	208	180	156
Students terminated due to high achievement	363	372	289	248	206	200
Students terminated due to promotion	263	329	275	247	233	250
Students terminated because school lost funding	278	355	328	264	278	225
CE students	445	468	475	407	421	337
Hours of Math Instruction						
Regular students	177	172	175	177	179	172
Students terminated due to high achievement	166	173	177	177	179	172
Students terminated due to promotion	152	147	154	177	195	186
Students terminated because school lost funding	111	158	193	206	181	177
CE students	195	190	182	247	214	208
Resource-Cost of Math Instruction						
Regular students	140	132	134	134	142	129
Students terminated due to high achievement	133	154	164	146	159	151
Students terminated due to promotion	128	114	116	169	182	160
Students terminated because school lost funding	114	138	182	161	164	168
CE students	262	280	260	349	351	329

*Regular and CE students were sampled only from schools with terminated students.

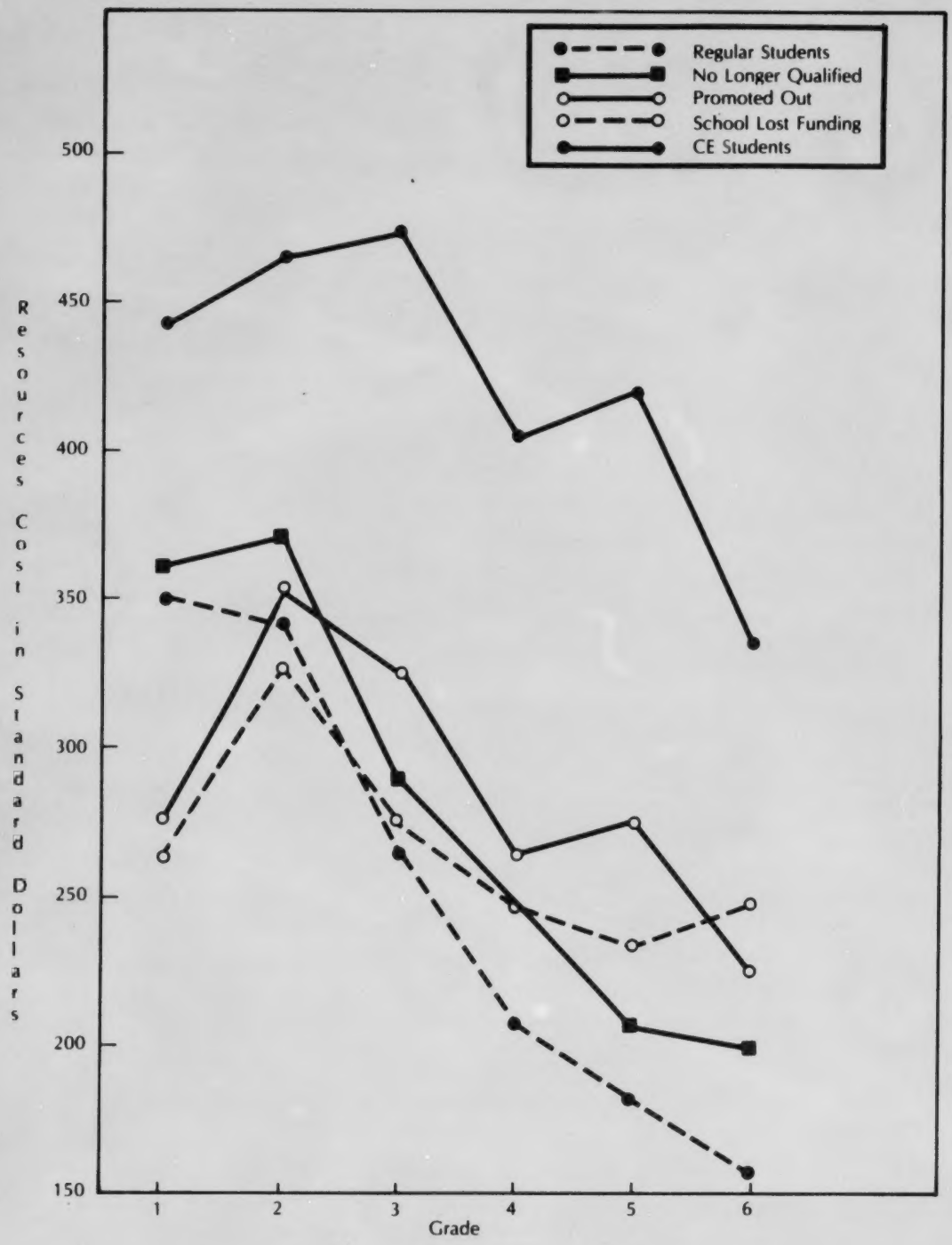

Figure 2-1
Resource Cost of Reading Instruction Offered

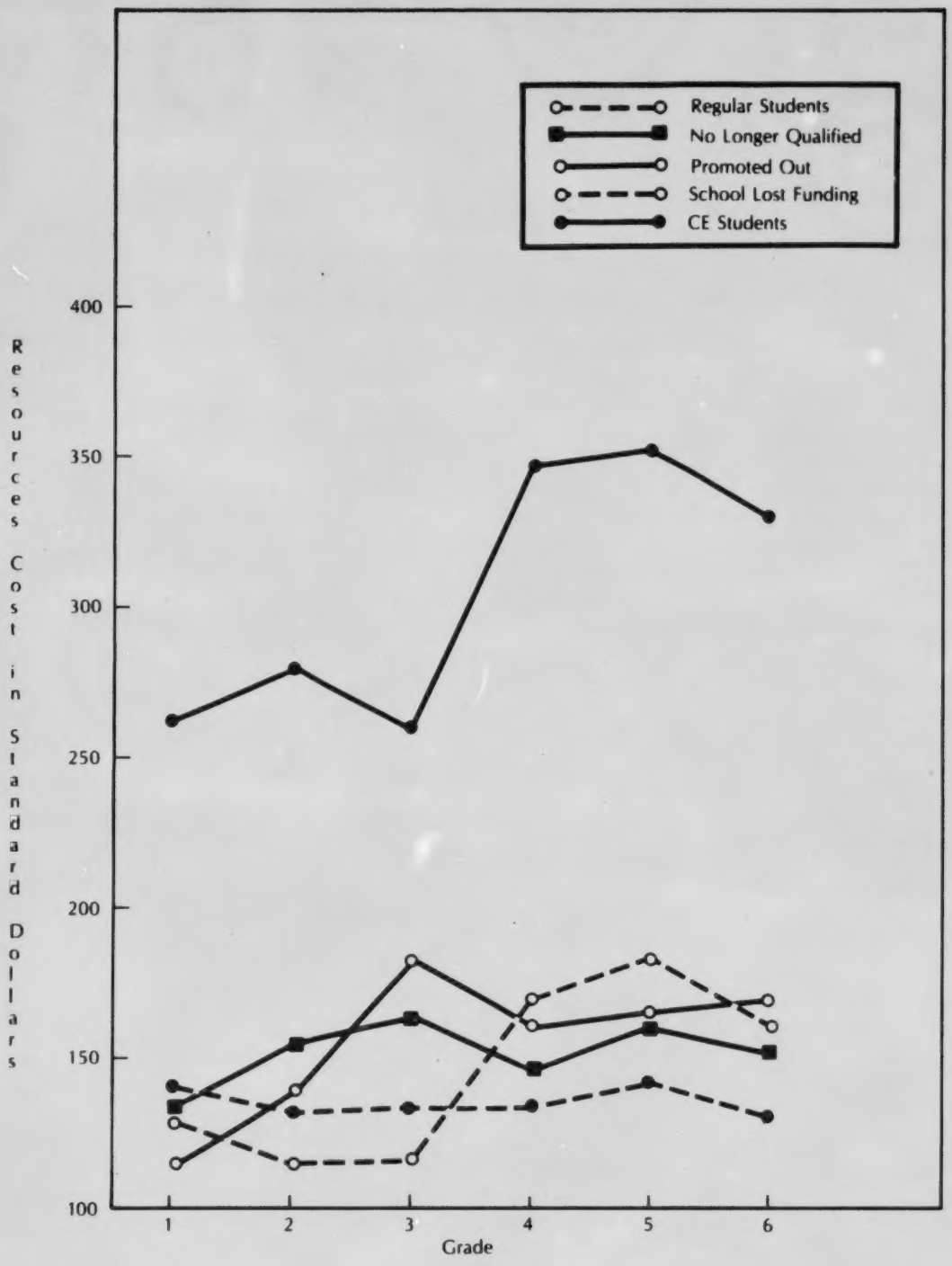

Figure 2-2

Resource Cost of Math Instruction Offered

differentiated, but the sample from schools with discontinued students tends to have lower resource costs.

In the sample drawn from schools with discontinued students, the regular students are differentiated more clearly from the CE students than in the more general sample, drawn from all schools with CE. Schools, where some students have their CE services discontinued, differentiate more clearly the amounts of service delivered to CE and to regular students (i.e., their CE programs are more focused). If terminating CE services tends to occur at schools where CE programs are more clearly defined (its being more important officially to move less needy students out of CE and more needy students in), we would find that delivery of services is more strongly associated with CE participation than in schools where the programs may be less organized or may consist of more diffuse sets of services.

Comparisons Among Students Whose CE Has Ended. Differences in services among the three categories of discontinued students are inconsistent over the six grades for all four measures. (An analysis-of-variance of the three categories, by grade, confirms that the interaction is significant, rather than an irregularity attributable to chance variations in cells that have relatively few observations). It is not possible, therefore, to make comparative statements about the services to these three groups—the interaction may be due to different policies among the schools which allocate resources differently to the grades; if such variations in allocation of services were confounded with the discontinuation patterns at the schools, the observed interaction would also result.

Analyses-of-variance confirmed that the differences in Tables 2-1 are real. The analyses presented in Table 2-2 for reading and for math are based on the sample from schools with terminated students. (Analyses were performed on the more general sample as well, with very similar results.) For both 'offered' and 'attended' hours of instruction, the amount of variance accounted for by transition category is about one percent for reading and four percent for math. (These percentages of variance are indicated in the table by the value of eta squared.) The greater differences shown by the cost-weighted measures is reflected both in the greater F ratios for transition category and in the greater proportion of variance accounted for—14 percent for reading and 24 percent for math. We can see that, although they are all significant, the differences among groups are larger for the cost-weighted measures. Grade accounts for more of the variance in reading than in math, indicating that the reduction in instruction with increasing grade is a reliable phenomenon.

Because assignment of students to services might be influenced by their achievement level, we also considered it potentially useful to study the differences among groups while controlling for achievement level at the beginning of the school year. The covariate of pretest was statistically significant, but the adjusted means were virtually equal to those obtained without the covariate. Apparently, nearly all of the variance accounted for by the covariate is already accounted for without it. Referring to the results of the descriptive analysis of achievement levels in the transition categories, reported in Chapter 1, it is apparent that achievement level is associated with the transition categories.

Confirmation of Findings With Title I Students in Year 2. Limitations in the year 2 data base required changing the analyses in several ways in order to confirm the findings. First, the

Table 2-2

Analysis of Variance of Reading and Math Instructional Services According to Changes in CE Programs (Transition) and Grade

Source	Degrees of Freedom	Proportion of Variance Accounted for (η^2)	Mean Square	F-Ratio
Hours of Reading Instruction Offered				
Transition category	4	.01	184,437	32.93*
Grade	5	.27	3,553,491	634.53*
Interaction	20	.02	50,680	9.05*
Within (error)	8,257		5,600	
Hours of Reading Instruction Attended				
Transition category	4	.01	122,492	23.98*
Grade	5	.25	3,000,772	587.42*
Interaction	20	.02	49,004	9.59*
Within (error)	8,257		5,108	
Cost of Reading Instruction Offered				
Transition category	4	.14	9,267,244	410.81*
Grade	5	.12	5,956,076	264.03*
Interaction	20	.01	153,942	6.82*
Within (error)	8,257		22,558	
Cost of Reading Instruction Attended				
Transition category	4	.14	7,792,336	387.82*
Grade	5	.11	5,015,750	249.63*
Interaction	20	.01	152,137	7.57*
Within (error)	8,257		20,093	
Hours of Math Instruction Offered				
Transition category	4	.04	169,860	65.54*
Grade	5	.01	40,480	15.62*
Interaction	20	.03	25,399	9.80*
Within (error)	5,712		2,592	
Hours of Math Instruction Attended				
Transition category	4	.04	141,042	58.68*
Grade	5	.01	37,769	15.71*
Interaction	20	.03	23,156	17.91*
Within (error)	5,712		2,404	
Cost of Math Instruction Offered				
Transition category	4	.24	4,368,312	486.16*
Grade	5	.00	52,728	5.87*
Interaction	20	.02	63,338	7.05*
Within (error)	5,712		8,985	
Cost of Math Instruction Attended				
Transition category	4	.24	3,816,207	473.14*
Grade	5	.00	55,724	6.91*
Interaction	20	.02	60,621	7.52*
Within (error)	5,712		8,065	

*Significant at the .001 level.

transition categories are specified by source of funding, in addition to the nature of the transitions. Because the numbers of students in the various categories were too small for all but Title I programs, the confirming analyses were based only on Title I students. The means of services and costs offered in Title I are presented in Table 2-3 for reading and math (parallel data on services and costs received can be found in Table B-3 of Appendix B. The absence of a terminated-because-school-lost funding category for reading is due to a lack of observations in this category.

Table 2-3

Average Hours and Costs of Instruction Offered to Title I Students Whose Programs Changed in Year 2, by Grade

Transition Category*	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
			Hours of Reading Instruction			
Regular students	**	298	248	224	213	201
Students terminated due to high achievement	318	281	244	231	226	210
Students terminated due to promotion	311	400	279	229	193	193
Title I students	**	292	260	290	245	269
			Resource-Cost of Reading Instruction			
Regular students	**	309	275	226	213	176
Students terminated due to high achievement	375	326	285	267	279	259
Students terminated due to promotion	335	448	360	270	224	212
Title I students	**	467	418	457	372	358
			Hours of Math Instruction			
Regular students	**	171	180	177	172	173
Students terminated due to high achievement	188	213	190	184	197	183
Students terminated due to promotion	171	187	158	205	171	209
Students terminated because school lost funding	164	188	177	149	156	152
Title I students	**	198	183	256	222	190
			Resource-Cost of Math Instruction			
Regular students	**	125	138	145	146	129
Students terminated due to high achievement	152	217	181	180	214	175
Students terminated due to promotion	114	122	127	193	163	205
Students terminated because school lost funding	148	155	209	146	128	136
Title I students	**	246	218	294	253	244

*Regular and Title I students were sampled only from schools with terminated students.

**Due to the sequential creation of samples, there were no remaining first-graders in schools with discontinued students who either received Title I both years or in neither year.

The data in Table 2-3 differ only slightly from the corresponding entries for year 1. The group discontinued due to promotion has much higher means in several cases, surpassing the level of services of even the Title I students. Because the numbers of observations for year 2 were small, we investigated the source(s) of the students in this category to see if the inflated means were attributable to a few aberrant schools. There were 56 schools contributing students for reading, and 27 for math, with no school contributing anywhere near the majority of cases. We conclude that the large means have some generality and are not due solely to distortions caused by a few deviant schools. In general, Title 1 students are offered more, and more costly, reading and math services than regular students, while former Title 1 students are offered intermediate amounts.

Results from analyses-of-variance to determine the significance of the differences among the means appear in Table 2-4. As was done for year 1, the analyses were performed with the regular and CE samples drawn from all schools with CE, as well as those drawn only from schools with terminated students. The outcomes of the analyses were slightly different, but were consistent in showing a strong main effect for transition category. As in year 1, the differences among the means within the groups of discontinued students had no meaningful pattern, so there is no basis for differentiating the three groups in terms of these service variables.

The finding, in the year 1 data, that services received by discontinued students are about the same as those for regular students, and are markedly lower than those for CE students is less clearly apparent in the year 2 data. For the two cost-weighted measures, the differences between regular students and CE students are clear, but the means for the discontinued students are not as close to those of the regular students as in the former analyses. They do tend to be more like the regular student means than like the CE means, however, and the contrast is particularly clear for the cost-weighted measures. The year 2 data therefore confirm the year 1 findings.

COMPARISONS OF KINDS OF EDUCATIONAL SERVICES

The preceding analyses clearly indicate that the amounts of services for terminated students are different from those for the CE students, and are closer to the level of the regular students. It is also of interest to know whether the *kinds* of services provided for terminated students can be differentiated from those provided for CE participants. This question was addressed through a set of discriminant analyses, in which each kind of terminated student was compared with each comparison group (i.e., regular students or CE student) in a two-group analysis. For our purposes, the outcomes that are important are (1) how well the two groups are differentiated by the kinds of services, and (2) which kinds of services serve as the best discriminators. (Kind-of-service in these analyses is one of the ten SPAR [Student Participation and Attendance Record-Reading] or SPAM [Student Participation and Attendance Record-Math]) instructional situations described at the beginning of this chapter. The results, based on samples only from schools with terminated students, are reported in Table 2-5 for reading and math (Table B-4, Appendix B, provides parallel results based on samples from all schools with CE).

Table 2-4

Analyses of Variance of Reading and Math Instructional Services, According to Changes in the Title I Program (Transition) and Grade

Source	Degrees of Freedom	Proportion of Variance Accounted for (η^2)	Mean Square	F-Ratio
Hours of Reading Instruction Offered				
Transition category	3	.02	229,477	34.58*
Grade	4	.11	815,150	122.85*
Interaction	12	.04	107,482	16.20*
Within (error)	3,619		6,635	
Hours of Reading Instruction Attended				
Transition category	3	.02	185,796	30.39*
Grade	4	.11	752,721	123.10*
Interaction	12	.04	96,408	15.77*
Within (error)	3,619		6,115	
Cost of Reading Instruction Offered				
Transition category	3	.12	4,080,093	172.64*
Grade	4	.05	1,227,647	51.94*
Interaction	12	.02	165,318	7.00*
Within (error)	3,619		23,635	
Cost of Reading Instruction Attended				
Transition category	3	.12	3,242,834	178.17*
Grade	4	.05	1,016,646	55.86*
Interaction	12	.02	127,709	7.02*
Within (error)	3,619		18,201	
Hours of Math Instruction Offered				
Transition category	4	.06	121,955	45.64*
Grade	4	<.01	6,660	2.49*
Interaction	16	.06	29,966	11.21*
Within (error)	2,688		2,672	
Hours of Math Instruction Attended				
Transition category	4	.04	80,933	32.79*
Grade	4	<.01	4,914	1.99
Interaction	16	.05	24,549	9.95*
Within (error)	2,688		2,468	
Cost of Math Instruction Offered				
Transition category	4	.11	814,065	89.49*
Grade	4	<.01	18,207	2.00
Interaction	16	.04	63,905	7.03*
Within (error)	2,688		9,097	
Cost of Math Instruction Attended				
Transition category	4	.08	612,400	82.07*
Grade	4	<.01	12,497	1.68
Interaction	16	.04	53,346	7.15*
Within (error)	2,688		7,462	

* Significant at the .001 level.

Table 2-5

Discriminant Analyses Between Terminated Students and Comparison Students (CE and Regular Students from Schools with Terminated Students) - Year 1

Groups of Students	% Correctly Categorized	Canonical Correlation	First Five Discriminators In Rank Order**
		Reading	
CE students vs. students terminated			
Due to high achievement	81.3	.577*	6, 5, 7, 10, 4
Due to promotion	72.3	.464*	6, 5, 7, 4, 3
Because school lost funding	75.1	.488*	6, 5, 7, 10, 1
(All terminated students)	82.2	.555*	6, 5, 7, 10, 4
Regular students vs. students terminated			
Due to high achievement	57.2	.156*	10, 1, 7, 5, 4
Due to promotion	63.1	.226*	1, 3, 10, 6, 2
Because school lost funding	63.2	.203*	1, 9, 6, 3, 7
(All terminated students)	57.9	.184*	1, 10, 5, 7, 6
		Math	
CE students vs. students terminated			
Due to high achievement	81.6	.595*	6, 7, 5, 4, 10
Due to promotion	74.7	.574*	7, 6, 5, 1, 9
Because school lost funding	78.5	.570*	6, 7, 5, 9, 10
(All terminated students)	85.1	.599*	6, 7, 5, 9, 4
Regular students vs. students terminated			
Due to high achievement	63.2	.187*	3, 1, 7, 5, 9
Due to promotion	81.1	.232*	9, 8, 10, 6, 4
Because school lost funding	75.2	.247*	9, 1, 8, 2, 10
(All terminated students)	60.3	.217*	9, 1, 3, 5, 9

*Significant beyond the .001 level, as determined by the chi-square statistic evaluated at 9 degrees of freedom.

**The predictors are the ten types of (reading/math) instruction:
1. Hours with a regular teacher in a group of 21 or more students.
2. Hours with a regular teacher in a group of 14-20 students.
3. Hours with a regular teacher in a group of 7-13 students.
4. Hours with a regular teacher, individually or in a group of 2-6 students.
5. Hours with a special teacher in a group of 7 or more students.
6. Hours with a special teacher, individually or in a group of 2-6 students.
7. Hours with a paid aide or teaching assistant in a group of 2-10 students.
8. Hours with a peer tutor or adult volunteer.
9. Hours of independent work using programmed materials.
10. Hours of independent work using non-programmed materials.

The results are quite similar for reading and math: the terminated students are differentiated rather clearly from the CE students, but much less clearly from the regular students. Also, the same three kinds of instructional situation generally appear first in order of importance for the discriminations that yield good group differentiation. For the best-discriminated pairs of groups, i.e., the terminated *versus* the CE students, the items that consistently rank first as discriminators are: 5. Hours with a special teacher in a group of 7 or more students; 6. Hours of instruction with a special teacher individually, or in a group of 2-6 students; and 7. Hours

with a paid aide or teaching assistant in a group of 2-10 students. Based on the averages of these items shown for the groups in Table 2-6, it can be seen that the terminated students receive less of each of these services than the CE students. These services, incidentally, are the very services that CE participants have previously been found to receive significantly more of (Wang et al., 1978).

Table 2-6

Average Hours in Selected Reading and Math Instructional Situations, for Terminated and CE Students Year 1

Student Group	Instructional Service*		
	5	6	7
		Reading	
Students no longer qualified for CE	2.5	2.7	5.8
Students promoted to grade with no program	2.2	3.8	6.5
Students teminated when school lost funding	1.7	3.4	6.7
CE students from schools with terminated students	29.2	40.4	29.8
		Math	
Students no longer qualified for CE	1.5	1.5	3.6
Students promoted to grade with no program	1.0	2.4	1.9
Students terminated when school lost funding	0.6	1.4	5.9
CE students from schools with terminated students	13.0	19.5	15.5

*Item Code:
5. Hours of instruction with a special teacher in a group of 7 or more students.
6. Hours of instruction with a special teacher individually, or in a group of 2-6 students.
7. Hours of instruction with a paid aide or teaching assistant in a group of 2-10 students.

Comparing terminated students with regular students, we find that items 1 (instruction by a regular teacher in a large group), 9 (hours of independent programmed seatwork), and 10 (hours of independent non-programmed seatwork)—which are among the least costly of instructional services—appear most frequently in the first ranks of discriminators. It is important to keep in mind that, since the total discriminative power of the items in these analyses is not high, the discriminative power of the first-rank predictors is not high either, and differentiation of the groups according to these items is not strong. Independent instruction-time seems the best differentiator for math, as regular, large-group instruction is for reading. These findings confirm our hypothesis that the services provided to former CE students are more like regular services than CE services.

The discriminant analyses based on year 2 data differ from their year 1 counterparts in several ways. First, the discriminant analyses were performed separately by funding source. Second, additional categories of students were created to denote the situations in which students were

terminated in one program and started in another. The termination categories in year 2 were pooled into one group in order to avoid the problem of extremely small cell frequencies (such pooling of the year 1 data did not adversely affect the sensitivity of the corresponding analyses). The discriminant analyses for reading are summarized in Table 2-7, and those for math are summarized in Table 2-8.

Table 2-7

Discriminant Analyses Between Terminated and CE Students and Between Terminated and Regular Students - Reading, Year 2

Groups of Students	% Correctly Categorized	Canonical Correlation	First Five Predictors In Rank Order**
All students terminated from Title I*** vs.			
Title I students from the general sample	76.4	.481*	7, 6, 5, 4, 3
Title I students from schools with terminated students	81.3	.446*	6, 5, 7, 3, 9
Regular students from schools with CE	61.4	.281*	7, 6, 5, 10, 9
Regular students from schools with terminated students	61.9	.294*	7, 10, 5, 4, 9
All students terminated from Other-Federal CE vs.			
Other-Federal CE students from the general sample	60.3	.233*	9, 6, 8, 4, 2
Regular students from schools with CE	78.6	.494*	7, 6, 4, 1, 8
Regular students from schools with terminated students	78.4	.507*	7, 6, 4, 1, 8
All students teminated from State/Local CE vs.			
State/Local CE students from the general sample	75.7	.355*	5, 6, 2, 7, 1
Regular students from schools with CE	70.7	.447*	7, 6, 4, 5, 2
Regular students from schools with terminated students	69.9	.455*	7, 6, 4, 5, 2
All students switched from Title I to Other CE vs.			
Title I students from schools with terminated students	58.1	.268*	9, 7, 5, 2, 4
Terminated Title I students, not added elsewhere***	84.0	.381*	6, 5, 4, 9, 8
Students added to Other CE, no change in Title I	72.3	.268*	4, 6, 10, 5, 9
All students switched from Other CE to Title I vs.			
Title I students from schools with terminated students	65.2	.302*	5, 4, 3, 6, 9
Students terminated from Other CE, no change in Title I	62.5	.252*	4, 8, 6, 9, 7
Students added to Title I, no termination in other CE	68.2	.302*	1, 4, 7, 5, 8

Table 2-7 (Continued)

All students switched from Other CE to another CE			
Students terminated from other, no change in Title I	61.3	.154*	9, 1, 10, 4, 2
Students added to other, no change in Title I	62.1	.258*	1, 10, 7, 2, 8

*Significant beyond the .001 level, as determined by the chi-square statistic evaluated at 9 degrees of freedom.

**The predictors are the ten types of (reading) instruction:
1. Hours with a regular teacher in a group of 21 or more students.
2. Hours with a regular teacher in a group of 14-20 students.
3. Hours with a regular teacher in a group of 7-13 students.
4. Hours with a regular teacher, individually or in a group of 2-6 students.
5. Hours with a special teacher in a group of 7 or more students.
6. Hours with a special teacher, individually, or in a group of 2-6 students.
7. Hours with a paid aide or teaching assistant in a group of 2-10 students.
8. Hours with a peer tutor or adult volunteer.
9. Hours of independent work using programmed materials.
10. Hours of independent work using non-programmed materials.

***These groups are identical.

Examining the reading table first, the reader will note that the students whose Title I was discontinued are more easily differentiated from the current Title I students than from the regular students (i.e., their services are more like regular services than CE services), as in the previous analyses on year 1 data. This tendency is reversed in both the other-federal programs and the state or local programs. These data indicate, then, that the kinds of services are allocated differently to discontinued Title I students than to current ones, but that such differences cannot be detected for the other programs. This probably is due to different guidelines and regulations for the other programs, which generally do not adhere to the same rules of supplementation of services and clear specification of selection criteria.

Examining the 'switched' categories, we see that those students who were terminated from Title I and begun in some other program are most clearly differentiated from those who were terminated in Title I and not added elsewhere. That is, they appear to be needy students whose programs were merely shuffled for administrative reasons. Their services least resemble those of the terminated students, and most closely resemble the services of the other two groups (those who continue to be in Title I and those who have been added to a non-Title I program). The students who were switched from some other program to Title I resemble all three comparison groups about equally, with a slight difference in favor of those whose CE status in other programs was terminated with no change in Title I. The reader will note that this category contains an unknown number of Title I students who were categorized (in keeping with the categorization priorities described previously) as being terminated from an other-federal or state/local program, even though they were selected for Title I both years.

Students switched between Other CE programs rather closely resemble both of the groups to which they were compared, in terms of services received. It is again important to note that both of the groups have some students who were in Title I, and so the similarity may be due to Title I services in all the groups.

The findings for math services are quite similar, with some exceptions. Students terminated from Title I are discriminable similarly to those in the reading analyses. For the students

terminated from other-federal programs, there is not the clearcut reversal of discrimination that was present for the reading analyses; there seem to be no important differences among the three discriminant analyses. For state/local programs, however, the math analyses show the same pattern as in the reading analyses. Discrimination between groups of students who were switched between math programs is similar to that for reading.

Table 2-8

Discriminant Analyses Between Terminated and CE Students and Between Terminated and Regular Students - Math, Year 2

Groups of Students	% Correctly Categorized	Canonical Correlation	First Five Predictors In Rank Order**
All students terminated from Title I*** vs.			
Title I students from the general sample	73.2	.423*	7, 5, 6, 9, 2
Title I students from schools with terminated students	84.7	.439*	5, 9, 6, 4, 7
Regular students from schools with CE	61.7	.292*	7, 10, 6, 5, 4
Regular students from schools with terminated students	62.1	.295*	7, 3, 2, 4, 10
All students terminated from Other-Federal CE vs.			
Other-Federal CE students from the general sample	76.7	.476*	10, 1, 9, 3, 4
Regular students from schools with CE	80.6	.524*	7, 4, 1, 9, 6
Regular students from schools with terminated students	82.1	.517*	4, 7, 6, 9, 8
All students terminated from State/Local CE vs.			
State/Local CE students from the general sample	72.7	.297*	6, 1, 5, 7, 3
Regular students from schools with CE	71.7	.457*	7, 1, 5, 6, 10
Regular students from schools with terminated students	70.8	.449*	7, 1, 5, 6, 4
All students switched from Title I to Other CE vs.			
Title I students from schools with terminated students	65.3	.356*	9, 7, 1, 4, 3
Terminated Title I students, not added elsewhere***	82.1	.376*	6, 5, 4, 1, 7
Students added to Other CE, no change in Title I	78.2	.297*	4, 5, 9, 7, 2
All students switched from Other CE to Title I vs.			
Title I students from schools with terminated students	72.9	.420*	5, 9, 1, 7, 3
Students terminated from Other CE, no change in Title I	63.7	.251*	7, 6, 3, 4, 1
Students added to Title I, no termination in other CE	68.7	.315*	1, 4, 7, 10, 3

Table 2-8 (Continued)

All students switched from Other CE to another CE			
Students terminated from other, no change in Title I	64.3	.195*	9, 5, 4, 3, 6
Students added to other, no change in Title I	80.8	.467*	7, 9, 3, 4, 8

*Significant beyond the .001 level, as determined by the chi-square statistic evaluated at 9 degrees of freedom.

**The predictors are the ten types of (math in lieu of reading) instruction:
1. Hours with a regular teacher in a group of 21 or more students.
2. Hours with a regular teacher in a group of 14-20 students.
3. Hours with a regular teacher in a group of 7-13 students.
4. Hours with a regular teacher, individually or in a group of 2-6 students.
5. Hours with a special teacher in a group of 7 or more students.
6. Hours with a special teacher, individuall or in a group of 2-6 students.
7. Hours with a paid aide or teaching assistant in a group of 2-10 students.
8. Hours with a peer tutor or adult volunteer.
9. Hours of independent work using programmed materials.
10. Hours of independent work using non-programmed materials.

***These groups are identical.

In summary, our comparison of students whose CE was discontinued with regular and continuing CE students indicates that:

- Discontinuation of CE results in an overall reduction in the amount and cost of educational services. CE students generally receive more hours of instruction and instruction of higher cost than regular students. The hours and costs for instruction for students terminated from CE are close to those for regular students, and considerably less than those for CE students.
- Discontinuation of CE results largely in a reduction of those extra services long presumed to characterize CE programs. The services that former CE students get less of are principally instruction in small groups by special teachers, paid aides, and teaching assistants.

CHAPTER 3. ACHIEVEMENT AFTER TERMINATION OF CE

The questions regarding the achievements of students after their CE has been terminated are the most important questions addressed in this report. The preceding discussions of selections, terminations, continuations, and nonselections, and of concomitant changes in CE services are important to our understanding of the context in which achievement growth occurs, but the focus of the report is upon the achievement-level effects of these factors. Specifically, the following questions are addressed:

- Do students who are disqualified because of high achievement maintain their educational growth?
- Do students who lose their CE due to administrative reasons (promotion or loss of funding) revert to pre-CE levels of growth?

Although these questions are conceptually distinct, the analytical procedures by which they were addressed are virtually identical, and so they are addressed together. We will first study differences in achievement levels at the end of the school year following CE termination. The comparisons will indicate how much in need the students remain (both current and terminated CE attendees) relative to the appropriate achievement levels. Because the achievement levels at the spring of the year will show low-achieving students in a poor light if their initial levels and growth rates are low, we will refine the analysis by comparing groups of students on growth rates that take initial achievement level into account. Differences in the growth rates of discontinued students will also be studied for the different CE programs.

As in the previous chapter, all analyses were done separately for reading and math. (The reader will recall that the creation of separate files for reading and math resulted in a considerable reduction in sample size in the categories of regular and CE students, as explained in Chapter 1. Where the number of observations is small—less than 200—it is because the entire sample had no more observations in the category.) The samples and transition categories in this chapter are the same ones described earlier. The data used in the analyses of achievement level may be biased by absenteeism from the original and make-up testing. The data in the analyses of growth are more susceptible to bias, because there were two opportunities, fall and spring, for absences to influence the results. A study of the biasing effects of absenteeism (Zagorski, Jordan, and Colon, 1979) indicates, however, that we can expect very small biases, which are likely to make CE students look better than they really are. We believe that the size and direction of the possible bias are insufficient to alter or even weaken the inferences we draw from the analyses of this chapter.

ACHIEVEMENT STATUS

Although the questions addressed in this chapter were phrased in terms of achievement growth, the goal of CE is to bring deprived students to the achievement level typical of their peers, and it is therefore important to our understanding of the development of achievement to examine achievement level in this chapter. Posttest achievement levels are compared across transition groups for year 1 and year 2, separately. Because a student's standing relative to the norm provides us with the clearest comparison of 'typical' achievement (the 50th

percentile being, by definition, equal to the achievement level appropriate for each grade), the measures of posttest achievement used are the percentile scores from the spring administrations of the (debiased) CTBS.

Table 3-1 presents the 'year-later' achievement levels for the terminated (prior to year 1) and comparison groups. It is immediately apparent that the regular students continue to achieve near the 50th percentile (somewhat higher because the regular students constitute the population minus the CE students—who are mostly low achievers) and the continuing CE students achieve at very low levels. One year after their CE was discontinued, the former CE students still achieve at low levels. Those discontinued because of high achievement have means closest to the regular students (but they were apparently in need of CE to begin with). Students discontinued because of promotion or because their schools lost CE funding remain very low achievers (means, especially at the lower grades, are based on rather small samples, so the sometimes high means are given little weight in our interpretation).

Table 3-1

Average Reading and Math Percentiles for Spring of Year 1 for Students Whose Programs Changed, by Grade*

Transition Category	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
			Reading			
Regular students	51.4	53.4	53.9	54.9	53.0	53.4
Students discontinued from CE						
Due to high achievement	47.4	41.1	41.6	35.7	29.8	31.5
Due to promotion	21.7	26.1	24.4	23.7	21.1	24.7
Because school lost funding	26.4	34.3	26.7	27.7	24.8	28.3
Continuing CE students	34.0	25.3	23.9	21.7	19.9	20.8
			Math			
Regular students	51.1	51.2	49.7	51.1	51.4	51.2
Students discontinued from CE						
Due to high achievement	49.2	47.4	40.8	33.1	36.2	37.9
Due to promotion	30.9	21.6	38.4	27.5	28.7	28.9
Because school lost funding	37.6	26.2	23.9	27.9	26.4	34.2
Continuing CE students	37.0	26.1	28.9	23.1	23.5	26.6

*Numbers of students supporting each average are provided in Table C-1, Appendix C.

In order to determine if the differences observed were statistically significant, analyses-of-variance were performed in a grade x transition category factorial design, the results of which are summarized in Table 3-2. The main effect of grade and the interaction are both significant, but the effect of the transition category is much greater than either, clearly supporting the meaningfulness of the differences observed in Table 3-1.

Table 3-2

Summary Table for Analyses of Variance of Spring Year 1 Reading and Math Achievement

Source	Degrees of Freedom	Proportion of Variance Accounted for (η^2)	Mean Square	F-Ratio
		Reading		
Transition Category	4	.275	370,043	673.3*
Grade	5	.013	14,030	25.5*
Interaction	20	.015	5,134	7.5*
Within (error)	9,793		550	
		Math		
Transition Category	4	.174	231,717	355.1*
Grade	5	.009	9,644	14.8*
Interaction	20	.012	3,222	4.9*
Within (error)	8,166		653	

*Significant at or beyond the .05 level.

In terms of achievement level, students who have their CE terminated because of high achievement are considerably below regular students, but clearly above CE students. Students whose CE is terminated for other reasons are much closer to the achievement level of CE students. Apparently, students who are no longer qualified are more clearly differentiated from the CE students than if they were selected by chance, or by the accident of terminated programs.

Examining the means for the disqualified students, we see that, with a single exception, they are all above the 30th percentile. Although there is no hard and fast criterion for deciding when a student is educationally deprived, it is reasonable to say that students above the 30th percentile are not seriously educationally deprived. Many of the means of the terminated students whose services were not intentionally discontinued (i.e., where the school lost funding or they were promoted out of the program) fall below this mark.

The corresponding analyses for year 2 are separated by type of program: Title I, other-federal, and state/local. Mean percentiles appear in Table 3-3 for reading and math. For the Title 1 categories, the difference between means for CE and regular students is easily seen, both for the sample drawn from schools with CE and for the sample drawn from schools with terminated students. The three terminated groups are not consistently ordered, as they were in the year 1 data, and the group discontinued due to high achievement is not as similar to either group of regular students as in the previous analysis. With one exception, discontinued students have greater means than CE students, as they did in the year 1 analysis.

For other-federal and state/local samples, it was not possible to obtain a sufficient number for the analyses from the schools with terminated students; therefore, only the sample from all schools with CE could be analyzed. (Even this sample yielded several cells with fewer than

Table 3-3

Average Reading and Math Percentiles for Spring of Year 2 for Students Whose Programs Changed, by Funding Source and Grade

Transition Category*	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
			Reading			
Regular students	—	61.3	63.4	65.0	59.6	58.0
Students discontinued from Title I						
Due to high achievement	34.1	35.6	41.6	36.8	28.4	30.4
Due to promotion	41.3	41.4	34.3	29.8	32.1	35.6
Because school lost funding	—	—	—	—	—	—
Continuing Title I students	—	24.4	25.6	17.4	19.7	17.0
Students discontinued from Other-Federal CE						
Due to high achievement	30.2	37.4	39.3	40.1	40.2	33.2
Due to promotion	54.0	65.3	20.5	31.3	30.1	43.8
Because school lost funding	57.0	37.7	54.5	30.7	42.2	56.7
Continuing Other-Federal CE students	—	—	—	—	—	—
Students discontinued from State/Local CE						
Due to high achievement	33.9	40.9	40.9	35.7	39.9	42.5
Due to promotion	39.3	32.6	37.4	35.9	31.4	56.8
Because school lost funding	46.6	41.6	37.0	38.5	29.7	24.9
Continuing State/Local CE students	—	—	—	—	—	—
			Math			
Regular students	—	59.2	58.9	56.4	58.5	58.4
Students discontinued from Title I						
Due to high achievement	42.1	40.6	41.1	37.3	32.7	35.3
Due to promotion	41.2	48.0	48.3	29.9	22.3	23.7
Because school lost funding	41.1	39.3	45.1	30.1	38.5	35.6
Continuing Title I students	—	33.3	22.9	25.3	21.8	31.5
Students discontinued from Other-Federal CE						
Due to high achevement	31.0	39.1	55.1	47.9	24.0	44.1
Due to promotion	—	37.0	—	29.8	28.9	48.6
Because school lost funding	21.8	58.7	47.0	45.3	52.4	50.0
Continuing Other-Federal CE students	—	—	—	—	—	—
Students discontinued from State/Local CE						
Due to high achievement	56.7	41.9	41.8	26.8	35.2	43.1
Due to promotion	—	50.7	44.0	48.0	50.4	39.9
Because school lost funding	25.1	47.1	45.8	36.2	33.4	31.7
Continuing State/Local CE students	—	—	—	—	—	—

*All students were selected from schools with terminated CE students; where numerical entries are missing, there were no students because of sequential sampling procedure. Numbers of students supporting each mean can be found in Table C-2, in Appendix C, and means for groups of students selected from all CE schools can be found in Table C-3.

10 students, see Table C-3 in Appendix C.) The means for other-federal CE students are usually slightly larger than the corresponding Title I means, but are nevertheless much smaller than the means for regular students (from schools with CE students). For both other-federal and state/local, the means of terminated students tend to be larger than those of CE students, and are, in nearly all cases, smaller than the means for regular students. The conclusion that can be drawn from an inspection of the means in Table 3-3 is that, although termination from CE, for whatever reason, generally happens to low-achieving students, they are not the lowest-achieving students. As was pointed out for the year 1 data of Table 3-1, however, nearly all means are above the 30th percentile for students in the disqualified category, and so students whose services are intentionally terminated are generally not the most seriously educationally deprived.

The analyses of variance summarized in Table 3-4 for reading and math are based on somewhat different samples. For Title I, the groups of regular and CE students are sampled only from schools with terminated students but, due to inadequate sample sizes from such schools, the other - federal and state/local analyses are based on groups from all schools with CE.

The results are similar for the two subjects, the only exception being that the grade effect for the other-federal students is significant for reading but not for math. With that single exception, all main effects and interactions are significant. As the relative sizes of the mean squares indicate, however, the main effect of transition category is much stronger than the main effect for grade or the interaction, statistically supporting what was seen earlier in the differences among means in Table 3-3. The biasing effects due to absenteeism or mobility that entered into these analyses would tend to raise the means (since lower-achieving students would be missing more frequently), and to raise the lower means more than the higher ones, thus biasing the analysis toward *not* finding differences among the groups. These biasing factors therefore cannot be responsible for the findings.

ACHIEVEMENT GROWTH

A more direct answer to the question of whether the achievement of former CE students 'reverts' upon termination of CE services requires that we examine the growth of students whose CE is terminated, in comparison to normal growth (the growth of regular students), and in comparison to the growth they would have experienced had their CE not ended (as estimated by the growth of students continuing in CE). Educational growth is measured by the CTBS vertical scale scores, which were created to reflect growth over time.

Both of these policy-related questions are addressed by the same analytic approach:

- Do students who are disqualified because of high achievements maintain their educational growth, and
- Do students who lose their CE due to administrative reasons (promotion or loss of funding) revert to pre-CE levels of growth?

A regression equation for posttest on pretest is obtained from each comparison group, and the coeffcients are then applied to the fall (pretest) scores of the terminated group to generate an expected value for their spring (posttest) scores. A type of residualized gain score is then

Table 3-4

Summary Table for Analyses of Variance of Spring Year 2 Reading and Math Achievement

Source	Degrees of Freedom	Proportion of Variance Accounted for (η^2)	Mean Square	F-Ratio
		Reading		
Title I				
Transition Category	3	.389	268,404	475.90*
Grade	5	.019	7,890	13.99*
Interaction	14	.014	2,083	3.69*
Error (within)	3,668		564	
Other-Federal				
Transition Category	4	.136	38,526	56.24*
Grade	5	.013	3,046	4.45*
Interaction	19	.023	1,368	2.00*
Error (within)	1,649		685	
State/Local				
Transition Category	4	.200	96,867	138.32*
Grade	5	.009	3,375	4.82*
Interaction	19	.022	2,231	3.18*
Error (within)	2,776		700	
		Math		
Title I				
Transition Category	4	.196	90,756	133.40*
Grade	5	.011	4,032	5.93*
Interaction	18	.018	1,880	2.76*
Error (within)	2,719		680	
Other-Federal				
Transition Category	4	.067	19,488	24.67*
Grade	5	.003	674	0.85*
Interaction	17	.002	1,608	2.04*
Error (within)	1,485		780	
State/Local				
Transition Category	4	.113	51,018	66.27*
Grade	5	.015	5,269	6.84*
Interaction	18	.029	2,893	3.76*
Error (within)	2,345		770	

*F ratio significant at or beyond the .01 level.

obtained by subtracting this expected score from the observed score for each student in the terminated group. This regression 'captures' the growth rate of the comparison group. Then we temporarily assume that the terminated group has the same growth rate, apply that rate to its pretest scores, and see if the result equals the terminated group's actual posttest. If the predicted result is larger than the actual posttest (negative residual), then the growth rate of the terminated group has been lower than that of the comparison group. On the other hand, if the residual is positive, the growth rate of the terminated group is higher. In principle, a similar residualized score is obtained for the comparison group in the same way, but the mean of the residualized scores is, by definition, zero, so need not be computed. The difference

between the mean residualized score for the 'treatment' group and for the comparison group therefore reduces to the mean residualized score for the 'treatment' group alone. The statistical test of the differences is a t-test based on the two samples, in which the denominator incorporates the variance from the comparison group from which the regression coefficients are obtained and the variance from the terminated group to which the regression coefficients are applied.

Students no Longer Qualified for CE. Addressing the first of the two questions, our concern is whether the students who are taken out of CE because their achievement levels are too high maintain the growth they experienced while they were in a CE program. For such students in year 1 we have no data indicating their growth while they were in the program the previous year, but we can compare their growth with that of students whose CE was continuous over the two years. It is important to recognize that the continuing CE students are not strictly comparable to the group identified as having achievement levels that justified terminating their CE, but they nevertheless provide a useful minimal baseline, insofar as the growth of the terminated students should be equal or greater.

Two independent samples of CE students were used for the comparison—one from schools with terminated students and one from the general sample. Although answering the question does not logically require comparison with regular students, it is of interest to determine whether the growth rate of the terminated students compares favorably with 'normal' growth, and so comparisons with samples of regular students were included in the analysis. The two samples of regular students are from schools with terminated students and from the general sample. (Note that regular students from the general sample are drawn from all schools in the SES sample, and so are not strictly comparable to CE students from the general sample, who necessarily come from only the schools with CE. Unlike the previous analyses of this chapter, this set of analyses is not affected by this difference between comparison groups, since no two comparison groups enter into the analysis.)

The means of the residualized scores are presented in Table 3-5, for both reading and math. The significance of the t-test, for a criterion (alpha) of .05, is denoted by an asterisk after the mean indicating that the score is further from zero than can be explained by chance. The results of these analyses, like those for year 2 data to be reported next, indicate that the growth rate of students disqualified from CE because of high achievement is higher than the growth rate of students still receiving it (mostly positive 'residualized' means) and is lower than the growth rate of regular students (mostly negative 'residualized' means). The discontinued reading group lies about halfway between the two growth rates for CE and regular students, while the discontinued math group is more like the math CE students than the regular students.

The reader will note that any absenteeism or mobility bias in these analyses would tend, as in the previous analyses, to make the lower-achieving groups look better, relatively, than the higher-achieving groups. The result would again be to work against discovering growth disadvantages for the low achievers. It is also reasonable to expect that a systematic bias would occur that would inflate the regression coefficients (since low achievers' growth is likely slower); this would bias residualized scores negatively, due to over-prediction. Consideration of these bias effects would not alter the direction or confidence of the interpretations in our analyses.

Table 3-5

Average Residualized Reading and Math Gain-Scores from Year 1 for Students Discontinued from CE Due to High Achievement, by Grade

Group From Which Regression Model Was Developed**	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
			Reading		
CE students from schools with terminated students	11.0*	5.7*	4.5	6.4*	5.8*
CE students from the general sample	5.2*	6.8*	8.6*	2.8	6.1*
Regular students from schools with terminated students	−10.6*	−3.4*	−5.5*	−2.5	−4.0*
Regular students from the general sample	−8.4*	−3.1	−4.4*	−3.9*	−1.5
			Math		
CE students from schools with terminated students	18.8*	3.0	−0.3	6.3	−1.3
CE students from the general sample	16.4*	4.4	8.8*	7.2*	0.6
Regular students from schools with terminated students	5.4	−12.3*	−13.5*	−6.6	−11.3*
Regular students from the general sample	1.3	−11.8*	−5.7	−8.6*	−10.6*

*Significant at or beyond the .05 levl.
**Means have been extracted from the more comprehensive Table C-4, in Appendix C.

The same question is addressed through similar analyses of year 2 data. Several factors combine to make the analyses more complex. First, because of differences in service intensities, we considered CE programs separately, by funding source: Title I, other-federal, and state/local. Second, the year 2 growth can also be compared to the growth of the same students from the previous year, as their own 'control.' In this case, the year 1 data are used to generate the regression coefficients, which are then applied to year 2 data to obtain residualized scores. (For these analyses, it was necessary to obtain projected and obtained scores for spring year 2, compute the difference, and perform a *one-sample* t-test; since the two 'groups' are not independent in this analysis.) In such analyses, it is necessary to assume that the year 1 growth rate is a reasonable estimate of the growth rate that would have occurred in year 2 if CE had not been terminated. This assumption is not exactly accurate because the growth rates are larger for earlier grades than for any later ones, so the growth of year 1 is an overestimate of the expectation for year 2. Also, since there are four testing times, absentee and mobility bias must be greater in this analysis than in the previous ones. Unfortunately, there is no acceptable way to determine empirically how well the year 1 data work as estimates of what would have occurred in year 2 if selection had not been continued. Even though there is a group of students who were in CE in both years, the discontinued students do not constitute an equivalent sample (for example, they tend to be higher achievers), and so the no-change growth curves for one group cannot be held to represent the other.

The means for the year 2 residualized gain scores for disqualified students are presented in Table 3-6. Recall that a positive mean in these tables indicates that students in the terminated

Table 3-6

Average Residual Reading and Math Gain Scores from Year 2 for Students Discontinued from CE Due to High Achievement, by Grade

Group From Which Regression Model Was Developed**	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
Title I					
			Reading		
Title I students from schools with terminated students	6.1	4.3	18.5*	3.3	12.3*
Title I students from the general sample	3.3	18.1*	12.0*	4.4	2.3
Same Title I students from the previous year	-5.8*	-1.6	-0.2	-7.6*	1.0
Regular students from schools with terminated students	-22.0*	-6.0*	-13.7*	-12.4*	0.3
Regular students from the general sample	-21.4*	-6.0*	-10.2*	-15.1*	-3.2
			Math		
Title I students from schools with terminated students	8.6	9.5	8.5	3.6	6.2
Title I students from the general sample	-4.3	2.3	12.1*	8.0*	-0.2
Same Title I students from previous year	22.2*	10.8*	10.5*	-4.0	-7.3
Regular students from schools with terminated students	-12.0*	-17.1*	-14.2*	-16.7*	-8.6
Regular students from the general sample	-6.2	-18.0*	-14.5*	-14.3*	-16.7*
Other-Federal CE					
			Reading		
Other-Federal CE students from the general sample	4.8	-6.8	26.5*	50.5*	-0.4
Same Other-Federal CE students from the previous year	14.2	-2.9	7.1	8.5	26.8*
Regular students from schools with terminated students	-15.6	-11.1	-5.8	3.2	11.8*
Regular students from the general sample	-15.3	-10.6	-2.2	1.6	8.4
			Math		
Other-Federal CE students from the general sample	0.5	26.3*	—	—	31.2*
Same Other-Federal CE students from the previous year	-0.6	23.1*	-13.5	—	31.5
Regular students from schools with terminated students	-17.9	-0.6	-11.9	—	16.6
Regular students from the general sample	-13.1	-1.1	-10.8	—	8.6

group had a higher growth rate than the group with which they're being compared; if the mean is negative, the terminated students had a lower growth rate. What we expect to find from these tables is that:

$$\text{Growth}_{\text{CE students}} > \text{Growth}_{\text{Terminated students}} \geq \text{Growth}_{\text{Regular students}}$$

Table 3-6 (Continued)

State/Local CE					
			Reading		
State/Local CE students from the general sample	4.8	4.3	7.7	21.7*	28.4*
Same State/Local CE students from the previous year	14.2*	-8.2*	-8.5*	-2.8	6.7
Regular students from schools with terminated students	-7.2*	-6.3*	-12.2*	-5.5	7.3
Regular students from the general sample	-7.2*	-6.5*	-8.6*	-7.0	3.7
			Math		
State/Local CE students from the general sample	-10.1	21.6*	-2.2	3.5	-1.9
Same State/Local CE students from the previous year	18.2*	14.8*	-8.5*	-21.9*	-8.3
Regular students from schools with terminated students	-16.8*	-7.0	-22.1*	-25.5*	-8.3
Regular students from the general sample	-11.3*	-8.6*	-23.7*	-22.7*	16.5*

*Significant at or beyond the .05 level.
**Means have been extracted for the more comprehensive Tables C-5, C-6, and C-7, in Appendix C.

The residualized scores based on longitudinal data are placed in the center of their sub-tables between the scores derived from CE students and those derived from regular students, as their mean values are expected to lie between those two sets of scores. As their own control or comparison group, the terminated students provide a baseline that is somewhat comparable to the baselines provided by the current CE students, in that both were CE participants at the time their data for the baseline were obtained. The group is also somewhat like the regular students, however, in that their achievement level was high enough to exit CE status. (It should also be pointed out that some of these students could properly belong to the CE population, having obtained high scores through error of measurement. In that case, regression toward the mean would tend to produce lower achievement scores in year 2, and thus make them fall below expectation, yielding negative residual scores. The only way to minimize error of this sort is to use the most valid and reliable tests available, but the regression effect is important to consider as we interpret scores that fall below expectation.)

Examining the means in Table 3-6, we see that the order suggested in the preceding paragraph does, in fact, appear. Former CE students have higher growth rates than we would have expected if they were like current CE students, but their growth rates are lower than would have been expected if they were like regular students. The results of comparing the students with growth-estimates based on their earlier growth are mixed. The math data are not consistent across grades. (It seems best not to attach too much importance to the longitudinal analyses, given that they are more prone to attrition biases and growth curve irregularities than the other analyses represented in the table.)

The same general relationship appears for other-federal students also (see Table C-6, Appendix C), but it is not as clear, due partly to the small samples. (It is important to note that small samples not only reduce the statistical precision of estimates, but also call into question the representativeness of the observations, since the subsets defined for these analyses were not considered in the definition of the original SES sample.) For the state/local analyses, however,

the sample sizes are a little larger, and the pattern of the results is a little clearer (see Table C-7). In general, the data indicate that the growth of students terminated from CE (due to high achievement) is somewhat greater than that of the students who remain in CE, and considerably less than that of regular students.

A closely related issue of importance to policy makers is the identification of an achievement level at which students should be removed from a CE program. We might expect, for example, that the students who score lowest are least ready to be returned to regular work, and so will suffer the greatest decrements after termination of their CE services. In order to determine whether post-CE growth is different for students of different pre-termination achievement levels, we blocked the students terminated because of high achievement by their pre-termination quartile. We then calculated change-scores from spring year 1 to spring year 2, separately, by spring year 1 achievement quartile. It must be acknowledged at the outset that such scores are susceptible to regression effects; students with either extremely high or extremely low scores will tend to have larger error components in their scores, and will tend to regress toward the mean. This regression effect must be considered as we examine the change-scores, but it is nonetheless worthwhile to examine them.

Table 3-7 contains the means for the four quartiles of former Title I and state/local students whose CE ended because of high achievement. (Standard deviations, sample sizes, and highest scores in each quartile are provided in Tables C-8 an C-9 of Appendix C.) Several aspects of these data are noteworthy. First, the N's tend to be smaller in the lower quartiles, reflecting the tendency for more students who were low-achievers in year 1 to be absent at the spring year 2 testing, or no longer enrolled. The worst case (see Table C-8) is in the fourth-grade Title I reading programs, where the lowest quartile has only about half as many students as the other three quartiles. The high attrition level in that single cell is associated with a *lower* average gain score than is found in the lowest quartiles at the other grade levels. We can infer, therefore, that it is *not* the low-growth students who are missing, because their absence would have raised the resulting gain estimate.

As we examine the means, it is apparent that growth (i.e., positive changes), is typical; all the means in Table 3-7, in fact, are positive. There is, as we expected, a tendency toward higher scores in the lowest quartile, and lower scores in the highest quartile, as would be caused by regression toward the mean. The means for the second and third quartiles are between these two extremes, and are not markedly different from each other. We have not tried to estimate the size of the regression effects for these change scores, but it is well known that all difference scores have larger-than-usual error components. For change scores of this kind, large error variances are generally associated with large regression effects.

Average gain scores associated with state/local CE programs we also presented in Table 3-7. The means have a more irregular pattern than those for Title I, likely due to the smaller sample sizes, but they are similar to the Title I means in most ways.

STUDENTS WHO LOST CE STATUS DUE TO NO PROGRAM AT GRADE OR SCHOOL

The second question at the beginning of this chapter is concerned with what happens to students who lose their CE status for reasons independent of their achievement growth. While

Table 3-7

Average Reading and Math Gain Scores, by Previous Year's Achievement Quartiles, for Students Teminated from CE Due to High Achievement, by Grade

Quartile Group*	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
			Title I Reading		
Lowest Quartile	52.1	45.3	28.1	29.1	40.7
Second Quartile	33.3	39.2	33.5	16.6	27.9
Third Quartile	39.0	39.9	33.0	22.2	29.5
Highest Quartile	22.1	29.3	22.0	13.1	24.1
			Title I Math		
Lowest Quartile	71.8	64.0	55.3	55.1	50.5
Second Quartile	46.7	55.6	42.0	31.5	33.3
Third Quartile	55.0	46.4	42.6	35.5	30.8
Highest Quartile	40.9	29.4	34.6	14.5	23.6
			State/Local CE Reading		
Lowest Quartile	70.0	49.2	39.0	43.7	60.0
Second Quartile	33.7	37.1	33.3	8.4	51.7
Third Quartile	50.5	40.5	27.8	31.1	26.1
Highest Quartile	56.1	24.8	27.5	27.3	17.9
			State/Local CE Math		
Lowest Quartile	55.2	85.2	39.1	66.5	61.1
Second Quartile	43.8	66.8	48.6	29.0	32.9
Third Quartile	43.3	51.4	33.6	15.9	28.1
Highest Quartile	45.0	40.1	29.1	9.9	5.0

*Sample sizes for other-federal students, when divided into quartiles, were too small to support analyses (N less than 10 in each case). Standard deviations and sample sizes corresponding to the means can be found in Tables C-8 and C-9 in Appendix C, along with the highest score earned in each quartile.

their CE services have ended, they may not have reached an achievement level that enables them to return productively to regular services. We have named these instances of CE discontinuation 'administrative,' and have distinguished two varieties: discontinuation due to promotion to a grade in which there is no CE program, and discontinuation because the school lost its CE funding. (For year 1, these groups were identified through teacher responses, as described in Chapter 1. The groups for year 2 were inferred through a procedure also described in Chapter 1.) The question requires that we determine whether these terminated students are losing whatever advantage they may have gained while participating in CE and are reverting to the low growth rates they had prior to participation. These two aspects of the question can be answered by comparing the growth rates of the terminated students first with the growth rates of regular students, and then with the growth rates of CE students. If we find that the growth rate of the terminated students is less than that of the CE students, we can infer that there is a reversion from the higher CE rate. If the rate of growth is also less than that of regular students in need of CE, then we must conclude that the present rate of growth is a reversion back to the low growth rate they had prior to becoming CE students. Our method of comparison is the same as we used previously, in which we examined the growth of students discontinued due to high achievement.

The first set of analyses is based on data from year 1. The means of residualized gain scores (i.e., spring scores with fall scores covaried out) are presented in Table 3-8 for both types of 'administrative' CE termination. Comparisons with both samples of regular students show that the growth rates of the terminated students are lower for reading and in all but two cases for math. There are a few cases where the growth of the terminated students is even lower than that for CE students, but in most instances it is higher. These comparisons do not support the conjecture, then, that the growth of these terminated students represents a falling off from the growth they experienced while in a CE program.

Table 3-8

Average Residualized Reading and Math Gain Scores from Year 1 for Students Promoted to a Grade with No CE Program and for Those Whose Schools Lost CE Funding, by Grade

Group From Which Regression Model Was Developed**	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
Promoted to a Grade With No CE Program					
			Reading		
CE students from schools with terminated students	3.0	2.0	-1.2	-1.4	-4.3
CE students from the general sample	2.2	1.3	2.2	-4.3	4.0
Regular students from schools with terminated students	-8.7	-2.9	-8.7*	-6.6*	-13.2*
Regular students from the general sample	-7.4	-3.2	-7.2*	-8.5*	-10.4*
			Math		
CE students from schools with terminated students	-4.9	3.3	3.7	4.5	-11.9*
CE students from the general sample	-2.3	4.3	10.7	9.6	-10.8*
Regular students from schools with terminated students	-11.4	-11.9*	-9.6	-0.5	-19.2*
Regular students from the general sample	-14.1	-11.0*	-0.8	-3.3	-18.9*
Schools Lost CE Funding					
			Reading		
CE students from schools with terminated students	5.1	2.4	-4.9	6.1	4.5
CE students from the general sample	0.4	1.8	-1.0	3.1	4.8
Regular students from schools with terminated students	-14.2*	-2.9	-14.1*	0.4	-4.6
Regular students from the general sample	-12.3*	-3.2	-12.9*	-1.5	-1.8
			Math		
CE students from schools with terminated students	2.3	-4.4	3.1	-1.6	10.9
CE students from the general sample	4.0	-4.2	5.2	3.2	11.7*
Regular students from schools with terminated students	-5.5	-19.9*	-16.3*	7.2	4.4
Regular students from the general sample	-8.4	-17.5*	-8.1*	-9.9*	4.7

*Significant at or beyond the .05 level.
**Means have been extracted from the more comprehensive Tables C-10 and C-11, in Appendix C.

For year 2, the comparisons are carried out separately for Title 1, other-federal, and state/local programs with the residualized scores derived in the same way as before.

Table 3-9 presents the mean gain scores for students whose CE services were ended because they were promoted into a grade that did not have CE. The terminated Title I students in

Table 3-9

Average Residualized Reading and Math Gain Scores from Year 2 for Students Who Lost CE Services Because of Promotion, by Grade

Group From Which Regression Model Was Developed**	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
Title I					
			Reading		
Title I students from schools with terminated students	9.2	10.6*	12.4*	6.3	8.5
Title I students from the general sample	4.7	22.6*	5.3	7.1	–0.5
Same Title I students from the previous year	–43.6*	13.8*	–3.8	–2.0	–9.6*
Regular students from schools with terminated students	–22.6*	6.8	–19.3*	–11.9*	–5.6
Regular students from the general sample	–21.0*	4.0	–15.8*	–14.2*	–9.2*
			Math		
Title I students from schools with terminated students	4.6	4.1	3.6	–13.4	–17.6
Title I students from the general sample	–15.7*	–2.8	7.9	–9.5	–18.1*
Same Title I students from the previous year	–18.2*	–11.1	4.7	–14.4*	–4.3
Regular students from schools with terminated students	–22.3*	–22.8*	–14.9*	–32.8*	–26.7*
Regular students from the general sample	–19.5*	–22.7*	–16.3*	–30.6*	–34.7*
Other-Federal CE					
			Reading		
Other-Federal CE students from the general sample	41.5	–2.3	12.7	25.0	7.8
Same Other-Federal CE students from the previous year	31.9	27.0	5.2	–14.3	–20.0
Regular students from schools with terminated students	17.5	10.9*	–10.2	–11.3	–11.2
Regular students from the general sample	19.0	5.5	–6.7	–13.8	–15.0*
			Math		
Other-Federal CE students from the general sample	–5.0	—	—	–8.1	41.3*
Same Other-Federal CE students from the previous year	—	—	8.4	–11.2	10.7
Regular students from schools with terminated students	–26.7*	—	–25.7*	–18.3*	18.2
Regular students from the general sample	–22.6*	—	–26.5*	–16.1	10.0

Table 3-9 (Continued)

State/Local CE					
			Reading		
State/Local CE students from the general sample	−3.0	5.8	13.3*	20.4*	38.0*
Same State/Local CE students fro the previous year	−6.3	−9.2	5.7	−5.3	−9.6
Regular students from schools with terminated students	−14.6	−3.3	−6.9	2.2	12.8
Regular students from the general sample	−14.9	−4.8	−3.3	−0.8	8.9
			Math		
State/Local CE students from the general sample	9.4	5.2	6.5	22.1	13.6
Same State/Local CE students from the previous year	23.6*	−2.1	21.0*	−21.1	24.0
Regular students from schools with terminated students	3.1	−18.7*	−5.1	−9.9	4.4
Regular students from the general sample	8.5	−19.0*	−4.7	−6.6	−3.6

*Significant at or beyond the .05 level.
**Means have been extracted from the more comprehensive Tables C-12, C-13, and C-14, in Appendix C.

reading have growth rates higher than the continuing CE students, lower than growth rates in the previous year, and lower than the regular students. In math the comparisons are generally similar. With some exceptions, these findings are replicated with the students discontinued from the Other CE programs.

The mean gain scores for the students in schools that lost CE programs are presented in Table 3-10. In general, these students' means are higher than those predicted from the continuing CE students, and always lower than those predicted from regular students or from their own growth the previous year. Although the nature of the longitudinal growth curve with the scaled scores (progressively decelerating) could be expected to bias the comparisons to be negative when growth is based on that from the previous year, especially in the lower grades, the bias is not sufficient to misguide our conclusions.

The evidence is not particularly strong that there is a decrement in growth after loss of CE. The proper interpretation of this finding is not clear. It is equally plausible to conclude that CE provided little or no help in the first phase, or that the growth rate it established was successfully maintained by students who were terminated 'accidentally.' Data from Report #10 (Wang et al., 1979), indicating that CE has only slight positive effects, does not help to resolve the issue. The year 2 data does not contradict the conclusions drawn from the year 1 data, then. While the students terminated from CE are, in fact, accumulating an educational deficit, there is no consistent evidence that they are worse off than their peers who are CE students during the same time, or than they themselves were the preceding year. There is, therefore, no evidence that discontinuation of CE services has a negative impact on the achievement growth of students.

SUMMARY

To summarize this chapter, we first inspected the end-of-year achievement levels of students who were and were not terminated from CE programs, in order to learn how educationally

Table 3-10

Average Residualized Reading and Math Gain Scores from Year 2 for Students Who Lost CE Services Because Their Schools Lost CE Funding, by Grade

Group From Which Regression Model Was Developed**	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
Title I					
			Math* **		
Title I students from schools with terminated students	12.8	26.6*	−5.6	9.9	9.5
Title I students from the general sample	2.2	19.4*	−1.7	15.4*	4.8
Same Title I students from the previous year	29.1*	22.0	−21.7*	−0.8	0.6
Regular students from schools with terminated students	−5.9	0.1	−26.4*	−12.1	−3.7
Regular students from the general sample	0.8	−1.1	−27.2*	−9.4	−11.8*
Other-Federal CE					
			Reading		
Other-Federal CE students from the general sample	5.6	1.4	8.8	43.0	29.7
Same Other-Federal CE students from the previous year	−3.8	−15.9*	3.8	−2.2	4.1
Regular students from schools with terminated students	−14.2*	−7.9*	−15.8*	−8.8	0.5
Regular students from the general sample	−14.1*	−5.7	−12.3*	−10.0	−3.5
			Math		
Other-Federal CE students from the general sample	24.2	18.5	—	23.4	32.9*
Same Other-Federal CE students from the previous year	26.8	0.6	−24.7	12.8	−3.5
Regular students from schools with terminated students	−3.5	−8.5	−34.3*	−9.9	−3.6
Regular students from the general sample	−0.7	−8.9	−32.2*	6.5	−11.9
State/Local CE					
			Reading		
State/Local CE students from the general sample	−0.4	−1.3	14.3*	11.5*	16.0*
Same State/Local CE students from the previous year	−10.6*	−6.0*	16.4*	−1.5	9.2
Regular students from schools with terminated students	−13.0*	−11.3*	−5.5	−7.6*	−1.7
Regular students from the general sample	−12.5*	−12.0*	−2.0	−10.5*	−5.1
			Math		
State/Local CE students from the general sample	0.6	2.2	8.8	15.2	8.8
Same State/Local CE students from the previous year	6.9	−12.0	22.2*	−1.7	16.8*
Regular students from schools with terminated students	−5.0	−22.3*	−8.6	−10.5*	−1.2
Regular students from the general sample	0.2	−22.7*	−9.5*	−8.2	−9.2

*Significant at or beyond the .05 level.
**Means have been extracted from the more comprehensive Tables C-15, C-16, and C-17, in Appendix C.
***No school lost its Title I reading program.

needy the terminated students were. In general, we found them to have lower achievement levels than regular students, but higher levels than continuing CE students. Among the students whose CE services ended, those disqualified because of high achievement exhibited achievement levels higher than other discontinued students, but still lower than those for regular students. When the end-of-year achievement percentiles are averaged over all grades and subjects, the averages are:

Regular students	52
Discontinued due to high achievement	38
Discontinued due to promotion	26
Discontinued because school lost funding	28
Continuing CE students	26

During the year after CE is ended, we can inspect students' growth rates to find out if those terminated students are maintaining their educational growth or are reverting to previous low rates. In Table 3-11 below, the growth rates of the discontinued students are compared with those of three different comparison standards.

Table 3-11

Comparisons of the Growth Rates of Discontinued Students to Three Standards

Reason for Termination of CE	How Do the Actual Growth Rates of Terminated Students Compare to the Rates of:		
	Students Continuing in That CE Program	Regular Students Judged to Need CE	The Same Terminated Students in The Previous Year
Title I Reading			
High achievement	Higher	Lower	Lower
Promotion	Higher	Lower	Lower
School lost funding	—	—	—
Title I Math			
High achievement	Higher	Lower	Higher
Promotion	Lower	Lower	Lower
School lost funding	Higher	Lower	Higher
Other-Federal Reading CE			
High achievement	Higher	Higher	Higher
Promotion	—	Lower	—
School lost funding	—	Lower	Lower
Other-Federal Math CE			
High achievement	Higher	—	Higher
Promotion	Higher	Lower	—
School lost funding	Higher	Lower	—
State/Local Reading CE			
High achievement	Higher	Lower	Lower
Promotion	Higher	—	—
School lost funding	Higher	Lower	—
State/Local Math CE			
High achievement	Higher	Lower	Lower
Promotion	—	Lower	Higher
School lost funding	Lower	Lower	Higher

Note: '—' indicates that the comparison is inconclusive because there were no means to compare, there were no differences that were statistically significant, or the differences balanced out so no conclusion could be drawn.

We can conclude that termination of CE services is not the unfair disaster that many have feared. In terms of achievement growth, the terminated students learn pretty much as would be expected of them, regardless of prior or current participation in a CE program.

CHAPTER 4. EFFECTS OF INSTRUCTION ON GROWTH

The findings of the preceding chapter suggest that students whose CE is discontinued do not fall behind the achievement growth rate of those whose CE is continued, even if discontinuation is due to outside factors, rather than to a decision that the students are ready for the mainstream.

One plausible interpretation of this finding is that growth rates, once established by CE services, tend to be maintained after those services are discontinued, i.e., that CE services have a sustained effect. It is also possible that some students whose CE is terminated receive somewhat different treatment than regular students; although their services (as analyzed in Chapter 2) resembled those of regular students, they were not identical to them. If there are, in fact, identifiable differences in specific services provided to some of the discontinued students, then it is useful to determine whether any of these services are more effective than others in promoting achievement growth. In this chapter we search for those effective services, if they exist in current practices, by addressing the question:

- What procedures are effective for maintaining growth when CE is discontinued?

The measures of educational growth used are the CTBS Vertical-Scale Scores for reading and for math, as in the preceding chapter. Notice that the question above deals not with discontinuation of CE services, but with discontinuation of selection for them (see Chapter 1 for a discussion of this important distinction). As the analyses in Chapter 2 indicated, the students whose selection status is discontinued in year 1 receive fewer services than those who remain in CE programs (as discontinuation of special services would lead us to expect); this is also true of Title I students in year 2. For purposes of policy- and decision-making, we want to learn which of the services that are still received are most effective in producing achievement growth.

The purpose of these analyses is to examine the relationships between the educational experiences and services to which terminated CE students are exposed after termination, and their subsequent achievement levels. This relationship is examined by regressing the CTBS reading measure on measures of services and experiences in reading instruction, and the CTBS math measure on the corresponding measures of math services and experiences. The measures of achievement growth are first derived by regressing the spring Vertical-Scale Score on the fall score, and employing the difference between the observed and the predicted scores as a residualized-gain score; which is then regressed on the service measures. The measures of types of instruction described in Chapter 2 will also be used in one set of analyses, supplemented by four composite measures. The composites are briefly described below.

> *Summer Reading (Math) Experience.* An index based on the unweighted sum of each student's responses on the Summer Activity Slipsheet on the amount of reading (math) instruction received in summer school, and on the numbers and kinds of books read during the summer (books read were not included in the math measure).

Summer Intellectual Experience. An index based on the unweighted sum of each student's responses on the Summer Activity Slipsheet on the total amount of organized and focused intellectual (academic-like) experience during the summer. This index is most heavily weighted with attendance at summer school, but also has leisure-time intellectual activities as components.

Teacher Experience and Training. A composite index formed for each teacher, based on responses to the Teacher Questionnaire. For the reading index, any general preparation items for teaching reading are included, such as hours of college-level courses, inservice training, etc. For math, items about preparation for the teaching of math are included. For each student, the indexes for each reading and math teacher that instructed the student were averaged to provide an average index for the training and experience of his/her hypothetical reading teacher and hypothetical math teacher.

Individualization of Instruction. A composite index based on the teachers' responses on the Teacher Questionnaire. All reading teachers responded to items on reading instruction and all math teachers responded to items on math instruction. The score assigned to each student was obtained by averaging the indexes for each teacher instructing that student, and scores for reading and math were calculated separately.

These four composites were joined by the ten service components (from Chapter 2) to form a set of fourteen service items for each subject. In the analyses labeled 'Service Items as Predicators,' the following variables were used to predict the residualized gain scores (reading predictors for reading gain-scores and parallel math predicators for math gain scores):

- Hours of (subject) with a regular teacher in a group of 21 or more students.
- Hours of (subject) with a regular teacher in a group of 14 to 20 students.
- Hours of (subject) with a regular teacher in a group of 7 to 13 students.
- Hours of (subject) with a regular teacher individually or in a group of 2 to 6 students.
- Hours of (subject) with a special teacher in a group of 7 or more students.
- Hours of (subject) with a special teacher individually or in a group of 2 to 6 students.
- Hours of (subject) with a paid aide or teaching assistant in a group of 2 to 10 students.
- Hours of (subject) with a peer tutor or adult volunteer.
- Hours of independent work in (subject) using programmed materials.
- Hours of independent work in (subject) using non-programmed materials.
- Summer (subject) experience.
- Summer intellectual experience.

- Teacher experience and training in (subject).
- Individualization of instruction in (subject).

Because there are inter-dependencies among the 14 items, and because we wanted to consider the effects of the cost-weighted sum of the services, the analyses were repeated using only summary-like composite data of more general interest.

In the analyses labeled 'Service Composites as Predictors' the following variables were used to predict the residualized gain scores (reading predictors for reading gain scores and parallel math predictors for math gain scores):

- Total hours of instruction in (subject) offered to student.
- Cost of total resources offered to student.
- Summer (subject) experience.
- Summer intellectual experience.

The first variable in this list is the sum of the first ten variables in the previous list of predictors, separately for reading and for math. The second variable is a cost-weighted measure, used in these analyses to reflect the intensity of instruction offered. The cost-weighted measure does not reflect actual expenditures, but reduces services to a standard metric so that different kinds of services can be aggregated meaningfully in terms of their resource costs (see Haggart et al., 1978).

PREDICTION OF THE ACHIEVEMENT GROWTH OF FORMER CE STUDENTS

In order to learn which services were most efficacious as components of programs for the students whose CE had ended, we employed multiple-regression analysis, and searched for the services that made significant contributions to the prediction of the students' achievement growth. Regression analyses were separately completed for each grade, for reading and for math and, where possible, for CE programs funded from different sources. For each of these regressions, one analysis was completed based on the items as predictors, and another on the composites as predictors. In addition, each analysis was performed on data from year 1 and on data from year 2.

Because of the large numbers of variables in these analyses, there are more cases where values for one or more variables are missing. For example, a student with the necessary CTBS scores —but missing a Summer Activity Slipsheet—would not be included. The analyses are therefore particularly susceptible to attrition due to absence or transfer of students, and are subject to the biases introduced by those kinds of attrition. The kind of bias that might be introduced would be expected to raise mean achievement level; we might also infer that achievement *growth* would be generally raised as well, but there is no basis for expecting the amount of association between services and growth to be biased in any particular direction.

Analyses were also considered in which the CE termination categories of year 1 would be used to analyze the effects of services over the two years of growth. Some drawbacks to this

approach led us to abandon it, however. The critical drawback was the rapid proliferation of combinations of termination and reinstatement between and among the funding sources and reading and math. Using such unique groups for analyses would have resulted in many analyses based on very small samples, from which we would not have learned very much by way of answers to our questions.

The results of the 230 separate regression analyses indicate that the service variables do not predict achievement growth with a very high degree of accuracy. This is true for all grades, both subjects, both years, and for all termination categories. The significant predictors in each analysis, along with the percentage of achievement variance they account for, are provided in Tables D-1 through D-8, in Appendix D. The amounts of variance accounted for by the predictor variables (i.e., the proportion of the remaining variance accounted for after the pretest has been partialed out of the posttest, when the other predictors are entered into a stepwise regression equation) is not large. Most variables never account for more than 5 percent of the variance of the residualized gain scores.

The results of the regression analyses are summarized in Table 4-1, where the significant predictors have merely been counted and summed over grades. Within each subject and termination category, each variable had the opportunity to make 20 significant contributions (i.e., if a variable were always significant in a subject and termination category, its entry would usually be 20). The fact that few variables ever reach significance with one-tenth of the frequency possible overall, illustrates quite clearly the lack of any strong consistency of predictive powers of the service variables. At best, we can draw the following weak conclusions:

- Instruction by special teachers in small groups and individualization of instruction most frequently predict the reading growth of students terminated from CE due to high achievement. Small-group instruction by regular teachers most frequently predicts math growth for such students.
- Small-group instruction by regular teachers and instruction by tutors or adult volunteers most frequently predict reading growth of students terminated from CE due to promotion to grade with no CE program. Instruction by regular teachers in medium-sized groups most frequently predicts math growth for these students.
- Teachers' experience and training most frequently predicts reading growth of students terminated from CE because their schools lost funding. Instruction by regular teachers in small groups most frequently predicts math growth for these students.
- The cost-weighted composite, which emphasizes individual instruction and instruction in small groups, is the most frequent composite predictor of growth for all termination categories and for both subjects.

Table 4-2 (extracted from Tables D-9 through D-12, in Appendix D) presents frequencies of each predictor's significant contributions to the prediction of growth, separately for reading and math, for students who were at four different achievement levels when services were terminated. The analyses from which the counts in Table 4-2 come represent an attempt to find kinds of services that are especially effective at each level of achievement. At each grade level, the students disqualified from CE due to high achievemnt for Title I and state/local CE

Table 4-1

Number of Times Each Predictor Made a Significant Contribution to the Prediction of Achievement Growth for Three Kinds of Students Terminated from CE Programs, Summed over the Duration of the Study and Differently Funded CE Programs

Predictor Variables	Discontinued Due to High Achievement		Discontinued Due to Promotion		Discontinued Because School Lost Funding	
	Reading	Math	Reading	Math	Reading	Math
Service Items						
Regular teacher, 21+ students	1	1	0	0	2	1
Regular teacher, 14-20 students	4	1	1	3	2	3
Regular teacher, 7-13 students	2	2	2	1	1	0
Regular teacher, 1-6 students	2	4	3	2	2	4
Special teacher, 7+ students	5	2	2	1	0	0
Special teacher, 1-6 students	1	3	1	0	2	1
Aides/Assistants, 2-10 students	3	2	2	2	0	1
Tutor or adult volunteer	4	3	3	0	2	3
Independent, programmed materials,	1	2	1	1	0	3
Independent, non-programmed materials	4	2	1	1	2	3
Summer (subject) experience	1	0	0	2	1	2
Summer intellectual experience	2	0	1	0	1	1
Teacher experience and training	4	3	2	2	3	2
Individualization of instruction	5	0	1	2	2	2
Service Composites						
Hours of instruction offered	0	2	0	1	2	2
Cost of hours of instruction offered	4	4	2	0	3	5
Summer (subject) experience	0	0	0	1	2	2
Summer intellectual experience	2	1	1	0	1	2

Table 4-2

Number of Times Each Predictor Made a Significant Contribution to the Prediction of Achievement Growth for Students Terminated from CE Due to High Achivement, by Quartile of Previous Year's Achievement

Predictor Variables	Previous Spring's Reading Quartile				Previous Spring's Math Quartile			
	Lowest	Second	Third	Highest	Lowest	Second	Third	Highest
Service Items								
Regular teacher, 21+ students	2	1	0	0	1	1	1	0
Regular teacher, 14-20 students	0	1	3	1	0	0	0	0
Regular teacher, 7-13 students	0	0	0	2	1	3	0	1
Regular teacher, 1-6 students	1	1	1	0	0	1	1	1
Special teacher, 7+ students	1	2	1	1	1	1	0	3
Special teacher, 1-6 students	0	1	0	1	0	0	0	1
Aides/assistants, 2-10 students	0	0	0	1	0	1	1	1
Tutor or adult volunteer	0	1	2	1	0	1	1	1
Independent, programmed materials	0	0	0	1	0	1	0	1
Independent, non-programmed materials	1	0	0	0	0	1	0	1
Summer (subject) experience	0	0	0	0	0	2	0	0
Summer intellectual experience	0	1	1	3	0	1	0	0
Teacher experience and training	0	1	2	1	2	1	0	1
Individualization of instruction	1	1	1	3	0	0	0	0
Service Composites								
Hours of instruction offered	0	0	0	1	1	1	2	1
Cost of hours of instruction offered	2	2	2	1	0	1	1	1
Summer (subject) experience	1	1	1	0	0	1	1	0
Summer intellectual experience	1	0	1	2	0	0	0	0

(there were not enough observations for other-federal CE) were divided into quartiles on the basis of achievement level at the spring of year 1, and regression analyses were completed for each quartile separately. The hope, of course, was that the inconsistencies in Table 4-1 would disappear when we predicted achievement growth for homogenous groups of students. We can see, by comparing the columns of Table 4-2, that there are no outstanding differences in the patterns of numbers. The creation of groups of terminated students, homogeneous in achievement, does not improve our ability to predict growth or the consistency of the prediction equations.

PREDICTION OF THE ACHIEVEMENT GROWTH OF FORMER CE STUDENTS, CONSIDERING THEIR GROWTH IN THE PREVIOUS YEAR

Finally, we attempted to refine our analyses another way, by partialing out of the posttest score, not only the pretest, but also a raw-difference growth score for year 1. This approach is the regression equivalent of the procedure of blocking students on their year 1 achievement growth in order to determine whether 'correcting' for this pre-termination measure would lead to a more sensitive detection of effective services. As in the blocking approach, we could base our analyses only on those students who were in the study both years, so sample sizes are similarly reduced. The findings reported in Tables D-13 through D-18, in Appendix D, paralleling in content Tables D-3 through D-8, are discouragingly similar. Proportions of variance accounted for are usually very small and inconsistent over grade, funding source, and reasons for discontinuation. Those proportions that are large are based on small samples, and so should not be generalized or even discussed.

SUMMARY

In summary, none of the instructional services measured are consistently effective in maintaining student growth after CE services are terminated. Lest this finding be used too extensively in inferring general principles, several limitations on this part of the study should be kept in mind:

- The services that were quantified may not constitute the conceptual breakdown of services that would be most sensitive to instructional quality (although this breakdown constitutes the finest-grained analysis available for a data base of this kind and size).
- Only existing conditions were examined. Had we studied a number of effective programs specifically designed to maintain student growth after CE, we might have had more positive and consistent findings.
- The instructional services studied occur in various contexts and combinations; to the extent that services interact, their effects could be hidden from any attempt at statistical disentanglement.
- It is not even particularly desirable that some services be especially superior to others; since these students have been returned to the mainstream, it seems entirely reasonable and acceptable that all the services provided to them (and to other regular students) be about equally effective in maintaining their growth. (If one or more services had emerged as superior, their identification would have been useful, of course, for optimization of their effectiveness.)

Although none of the services identified can be concluded to be *especially* effective, then, this conclusion is relative rather than absolute, and does not imply that none of the services are effective, or that all of them are effective. It merely tells us that we have no basis for creating maintenance programs emphasizing one or more of the service categories over the others. We will study these problems over a longer longitudinal time span in a future report from the SES, in hope that the larger picture will become clearer.

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APPENDIX A

SUPPLEMENTAL TEXT AND TABLES FOR CHAPTER 1

THE INCIDENCES OF CHANGES IN CE SERVICES

A complete picture of the relationship between reading and math transitions requires that we examine the extent to which students who change their status in one subject also change their status in the other. The cross-tabulation presented in Table A-1 (from which Table 1-1 was abstracted) provides the detailed information that is needed. The transition categories for math appear in the left margin of the table, along with numerical designations; for brevity, only the numbers appear at the top of the table as column designations. The transition categories for each funded program include three sub-categories of discontinued students: participants in both years, new participants, and regular students. Each row of the table, then, contains the numbers of students who fall into each transition category for math. Each column contains the corresponding transition frequencies for reading, and the cells show the numbers of students in each combination of changes in reading and math services. The main diagonal of the table shows the numbers of students who fall into the same transition category, for the same funding source, for both reading and math. It is possible to determine, by examination of the table, how many of the students who were disqualified for, say Title I reading, were simultaneously started in some other math CE program.

The reader will note that Table A-1 is subdivided into nine sub-tables, where the entire sample of students is categorized in each sub-table. (Slight variations in the total counts are caused by missing data introduced in the editing of the CER responses.) In the upper left-hand sub-table, the off-diagonal entries indicate numbers of students whose changes in the Title I programs weren't the same for both reading and math. For example, row 5, column 1, indicates the number of students (118) whose Title I reading was discontinued because of high achievement, but whose Title I math was started, both at the beginning Year 2.

The other two diagonal sub-tables, i.e., the center one and the lower right-hand one, hold the corresponding information for other-federal programs and for state/local programs, respectively. The remaining sub-tables are probably of less interest: the lower left-hand sub-table, for example, has diagonal entries that show the correspondence between state/local CE math changes and Title I reading changes, and its off-diagonal entries show the lack of agreement between the two. The Total rows and columns give the frequencies for the changes for reading and math, respectively.

Table A-1 provides the number of students who change CE status when the changes involve both reading and math. It is more likely, however, that a student may be discontinued from one reading CE program and be promoted into a grade served by a different CE program. In such cases, the educational continuity may be maintained, but the program is 'picked up' by another CE funding source. Table A-2, from which Table 1-2 has been abstracted, provides the numbers of students with changed CE programs within reading and within math.

Of particular interest in the left side of this table (reading) are the observations in the third row and the fourth, fifth, and sixth columns of the top two sub-tables. These entries are counts of the students who have started in Title I reading CE and at the same time been dropped from other-federal programs or from state/local programs. The lower left-hand sub-table may be read the same way to indicate the number of starts in other-federal reading CE programs

Table A-1

Number of Students with Changed CE Status in Reading and Math, by CE Funding Source

Funding Source and Transition Category	Title I Reading							Other-Federal Reading							State/Local Reading						
	1	2	3	4	5	6	Total	1	2	3	4	5	6	Total	1	2	3	4	5	6	Total
Title I Math																					
1. Achievement too high	941	17	0	259	104	309	1,630	128	55	9	28	16	1,394	1,630	43	21	46	78	135	1,307	1,630
2. Promoted out	16	63	0	19	22	76	196	10	0	0	3	25	157	195	1	4	3	3	7	177	195
3. No school funding	207	40	0	83	16	37	383	6	0	1	10	16	350	383	15	5	0	20	28	315	383
4. Continuing in program	149	36	0	2,370	231	176	2,962	2	61	169	82	20	2,628	2,962	18	23	179	534	231	1,977	2,962
5. Started Year 2	118	40	0	851	1,866	664	3,539	26	50	238	10	13	3,202	3,539	157	43	519	171	416	2,233	3,539
6. Regular students	1,342	228	0	1,466	1,920	29,977	34,933	213	188	318	202	674	33,179	34,774	730	211	877	785	2,130	30,041	34,774
Total	2,773	424	0	5,048	4,159	31,239	43,643	385	354	735	335	764	40,910	43,483	964	307	1,624	1,591	2,947	36,050	43,483
Other-Federal Math																					
1. Achievement too high	125	0	0	13	23	137	298	272	4	0	6	0	16	298	20	12	8	42	28	188	298
2. Promoted out	57	0	0	64	46	180	347	3	341	0	2	0	1	347	9	0	17	69	114	138	347
3. No school funding	51	0	0	192	90	121	454	14	3	421	11	0	5	454	20	68	1	214	49	102	454
4. Continuing in program	37	1	0	79	3	164	284	10	0	0	263	1	10	284	27	25	46	12	7	167	284
5. Started Year 2	19	8	0	34	26	177	264	1	2	0	2	148	111	264	36	14	0	30	42	142	264
6. Regular students	2,484	415	0	4,666	3,971	30,300	41,836	85	4	314	51	615	40,773	41,842	852	188	1,552	1,224	2,707	35,313	41,836
Total	2,773	424	0	5,048	4,159	31,079	43,483	385	354	735	335	764	40,916	43,489	964	307	1,624	1,591	2,947	36,050	43,483
State/Local Math																					
1. Achievement too high	70	5	0	66	155	272	568	17	10	18	26	11	486	568	354	4	0	36	12	162	568
2. Promoted out	104	4	0	103	51	236	498	2	0	68	4	11	413	498	119	139	0	25	12	203	498
3. No school funding	41	10	0	222	468	249	990	1	20	2	11	48	908	990	40	6	854	2	1	87	990
4. Continuing in program	41	16	0	515	133	357	1,062	40	66	190	11	17	738	1,062	11	0	0	985	32	34	1,062
5. Started Year 2	230	22	0	419	342	1,740	2,753	31	60	226	5	27	2,404	2,753	15	6	0	229	1,990	513	2,753
6. Regular students	2,287	367	0	3,723	3,010	28,225	37,612	294	198	231	278	650	35,961	37,612	425	152	770	314	900	35,051	37,612
Total	2,773	424	0	5,048	4,159	31,079	43,483	385	354	735	335	764	40,910	43,483	964	307	1,624	1,591	2,947	36,050	43,483

Note: Transition categories are:

1. Student discontinued from the CE program due to high achievement;
2. Student discontinued from the CE program due to promotion to a grade without the program in Year 2;
3. Student discontinued from the CE program because the school lost its funding in Year 2;
4. Student selected for the CE program in Year 1 and in Year 2;
5. Student newly selected for the CE program in Year 2 (not selected in Year 1);
6. Student not selected for the CE program either in Year 1 or in Year 2.

As examples to assist in reading this table, the following are three statements that can be drawn from the table

A. Seventy-nine students were selected for Title I reading services in both years *and* for Other-Federal math CE services in both years.

B. Eleven students were selected for Other-Federal reading CE services in both years and were discontinued from Other-Federal math CE services in Year 2 because their school(s) lost funding.

C. Five students were discontinued from Title I reading services in Year 2 because they were promoted to a grade that did not have such a program *and* were also discontinued from State/Local math CE services because they were disqualified due to high achievement.

Table A-2

Numbers of Students in Year 2 Samples Terminating, Continuing, and Starting Reading and Math CE, by Funding Source

Transition Categories	Grade*							Grade*						
	1	2	3	4	5	6	Total*	1	2	3	4	5	6	Total**
Title I Programs	**Other-Federal Reading Programs**							**Other-Federal Math Programs**						
1. Achievement too high	143	55	81	48	52	2,394	2,773	123	56	10	28	6	1,407	1,630
2. Promoted out	0	1	0	1	10	412	424	0	0	0	1	11	183	195
3. No school funding	0	0	0	0	0	0	0	0	0	13	0	0	370	383
4. Continuing in program	19	63	359	97	47	4,463	5,048	1	60	169	78	6	2,648	2,962
5. Started Year 2	56	47	100	9	27	3,920	4,159	24	49	92	1	24	3,349	3,539
6. Regular students	167	188	195	180	628	29,721	31,07	150	182	170	176	217	33,879	34,774
Title I Programs	**State/Local Reading Programs**							**State/Local Math Programs**						
1. Achievement too high	121	53	42	97	213	2,247	2,773	68	39	33	24	157	1,309	1,630
2. Promoted out	5	4	16	15	37	347	424	0	4	3	4	6	178	195
3. No school funding	0	0	0	0	0	0	0	7	3	1	6	26	340	383
4. Continuing in program	100	43	235	618	363	3,689	5,048	17	12	178	508	152	2,095	2,962
5. Started Year 2	216	45	541	167	463	2,727	4,159	135	60	474	92	453	2,325	3,539
6. Regular students	522	162	790	694	1,871	27,040	31,079	341	380	301	428	1,959	31,365	34,774
Other-Federal Programs	**State/Local Reading Programs**							**State/Local Math Programs**						
1. Achievement too high	20	16	8	48	36	257	385	19	2	1	41	26	209	298
2. Promoted out	10	2	17	73	114	138	354	7	0	20	65	59	196	347
3. No school funding	18	72	32	210	71	332	735	19	68	1	191	70	105	454
4. Continuing in program	30	28	46	11	5	215	335	25	4	11	11	13	220	284
5. Started Year 2	14	14	54	13	34	635	764	9	35	0	23	80	117	264
6. Regular students	872	175	1,467	1,236	2,687	34,473	40,910	489	389	957	731	2,505	36,765	41,836

*All frequencies in the left sub-tables are only for reading and all in the right sub-tables are only for math.
**The total number of students is 43, 483; the number of missing observations is 1,025.

coinciding with discontinuation from state/local reading CE programs. Examining the third column, fourth, fifth, and sixth rows, we find the numbers of students making the opposite program changes. The right-hand sub-tables are exactly analogous for math CE programs. It can be seen that, for both reading and math, shuffling students among different CE programs, while it occurs, is not a common practice.

The fourth, fifth, and sixth rows and columns in each sub-table form a small matrix that is of some additional interest. Since our method of identifying the students whose CE status was discontinued because they were no longer qualified is inferential, it is reassuring to note that the numbers in these small sub-matrices are about what we should expect if our inferences were correct. There is very little agreement indicated by the fourth and fifth rows and columns, but a good deal more in the cell where the sixth row and column intersect. That is, students are more likely to be disqualified in two programs simultaneously than they are to lose their selection status simultaneously because they were promoted to grades with neither program or because their schools lost both types of CE funding.

We have so far presented cross-tabulations as not differentiated by grade, in order to minimize complexity. Table A-3 provides information for year 2 by grade, separately for reading and for math. It is apparent that the discontinued groups, which are the focal point of this report, constitute a small minority of the sample, but that there were sufficient numbers to justify selected analyses.

Several phenomena can be seen underlying the numbers in Table A-3. First, because the transition categories were created from the Compensatory Education Rosters from year 1 and year 2, and because we did not study grades lower than grade 1, one would not expect to find any first-grade students at all. Over 600 of the first-grade students were retained for the second year; but unaccountably some of them were 'promoted out' (this could occur if, for example, Title I services were not provided to any first-graders in year 2, perhaps because some other program could be used to replace its services), and otherwise were 'disqualified because of achievement' (not explainable when it is remembered that these students had been retained in grade 1). In reading, no school appears to have lost Title I programs, but one or more appear to have lost Title I math programs (another explanation is that the school shifted its entire Title I program to reading services in year 2).

Table A-3

Numbers of Students Whose Educational Programs Changed, Tabulated Separately by Grade and CE Funding Source

Transition Category	Reading CE Services						Math CE Services					
	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
Title I*												
No longer qualified	70	603	627	613	442	418	31	352	312	396	300	239
Promoted out	17	26	55	182	65	79	4	18	11	51	35	77
No school funding	0	0	0	0	0	0	16	63	114	63	56	71
Continuing in program	144	1,036	1,114	1,040	939	775	46	542	593	682	571	528
Started Year 2	58	1,101	916	870	619	595	65	771	840	741	608	514
Regular students	323	6,393	5,952	6,007	6,388	6,176	450	7,413	6,794	6,779	6,883	6,614
Other-Federal CE*												
No longer qualified	11	135	121	25	51	42	8	123	105	25	18	19
Promoted out	1	3	2	228	61	59	1	3	1	227	60	55
No school funding	40	154	142	109	147	143	11	55	63	44	137	144
Continuing in program	20	115	122	24	16	38	8	102	109	16	11	38
Started Year 2	9	175	171	154	161	94	1	30	41	63	54	75
Regular students	526	8,534	8,077	8,140	7,993	7,646	578	8,803	8,316	8,305	8,149	7,691
State/Local CE*												
No longer qualified	11	192	200	251	177	133	4	48	94	107	146	169
Promoted out	15	65	53	76	45	53	15	123	83	159	76	42
No school funding	46	368	381	365	298	166	17	237	181	215	217	123
Continuing in program	36	342	385	323	295	210	25	223	239	228	181	166
Started Year 2	35	667	537	471	596	641	45	627	607	438	559	477
Regular students	464	7,482	7,079	7,194	7,018	6,813	501	7,858	7,431	7,533	7,250	7,039

*A total of 44,508 students are categorized in each of the sub-tables, but there were 865 students with missing data for Title I selection; 1,019 missing data for Other-Federal CE selection; and 1,025 missing data for State/Local CE selection. The numbers of students categorized in each CE program, then, is 43,643 for Title I, 43,489 for Other-Federal, and 43,483 for State/Local.

APPENDIX B

SUPPLEMENTAL TABLES FOR CHAPTER 2

Table B-1

Average Hours and Costs of Instruction Attended by Students Whose Programs Changed in Year 1, by Grade

Transition Category*	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
			Hours of Reading Instruction			
Regular students	301	287	233	196	179	162
Students terminated due to high achievement	319	271	238	207	183	169
Students terminated due to promotion	251	203	244	199	178	178
Students terminated because school lost funding	242	262	251	220	217	174
CE students	274	275	258	231	223	183
			Resource-Cost of Reading Instruction			
Regular students	327	322	251	197	170	148
Students terminated due to high achievement	339	348	272	233	193	187
Students terminated due to promotion	228	305	263	234	218	235
Students terminated because school lost funding	260	325	309	248	260	212
CE students	405	435	438	378	403	319
			Hours of Math Instruction			
Regular students	165	163	164	167	169	162
Students terminated due to high achievement	156	163	167	166	168	162
Students terminated due to promotion	139	137	146	168	182	174
Students terminated because school lost funding	100	149	176	191	166	164
CE students	179	173	171	232	202	196
			Resource-Cost of Math Instruction			
Regular students	130	125	125	126	135	122
Students terminated due to high achievement	125	145	155	137	150	142
Students terminated due to promotion	117	106	110	160	170	150
Students terminated because school lost funding	105	129	167	150	151	158
CE students	240	255	245	325	335	310

*Regular and CE students were sampled only from schools with terminated students.

Table B-2

Average Hours and Costs of Instruction Offered and Attended by Regular and CE Students Selected from All Schools with CE in Year 1, by Grade

Transition Category*	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
Hours of Reading Instruction Offered						
Regular students	322	291	255	212	205	184
CE students	314	315	282	252	243	242
Hours of Reading Instruction Attended						
Regular students	302	276	242	201	194	174
CE students	291	295	263	234	225	226
Resource-Cost of Reading Instruction Offered						
Regular students	347	316	275	218	200	181
CE students	439	480	430	398	364	348
Resource-Cost of Reading Instruction Attended						
Regular students	325	300	261	207	189	170
CE students	407	450	401	371	340	325
Hours of Math Instruction Offered						
Regular students	173	178	175	180	179	172
CE students	176	180	204	214	216	192
Hours of Math Instruction Attended						
Regular students	162	168	165	171	169	162
CE students	163	167	190	200	203	179
Resource-Cost of Math Instruction Offered						
Regular students	137	149	143	150	157	143
CE stdents	210	227	248	285	300	236
Resource-Cost of Math Instruction Attended						
Regular students	128	140	134	142	148	135
CE students	194	210	231	266	284	221

*Headings and format for this table have been maintained in order to facilitate comparisons of data in Tables 2-1 and B-1.

Table B-3

Average Hours and Costs of Instruction Received by Title I Students Whose Programs Changed in Year 2, by Grade

Transition Category*	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
			Hours of Reading Instruction			
Regular students	**	283	236	214	202	190
Students terminated due to high achievement	291	260	229	214	209	194
Students terminated due to promotion	288	379	266	214	185	177
Title I students	**	274	242	263	226	250
			Resource-Cost of Reading Instruction			
Regular students	**	277	246	204	190	158
Students terminated due to high achievement	345	288	250	235	246	227
Students terminated due to promotion	285	391	325	240	200	182
Title I students	**	422	375	404	324	319
			Hours of Math Instruction			
Regular students	**	160	169	168	162	163
Students terminated due to high achievement	172	197	179	171	183	168
Students terminated due to promotion	153	169	146	194	158	193
Students terminated because school lost funding	155	176	169	142	146	145
Title I students	**	184	170	232	196	179
			Resource-Cost of Math Instruction			
Regular students	**	113	124	130	132	118
Students terminated due to high achievement	140	190	161	157	193	156
Students terminated due to promotion	97	111	108	176	145	177
Students terminated because school lost funding	131	153	194	135	113	124
Title I students	**	223	198	264	214	217

*Regular and Title I students were sampled only from schools with terminated students.

**Due to the sequential creation of samples, there were no remaining first-graders in schools with discontinued students who either received Title I both years or in neither year.

Table B-4

Discriminant Analyses Between Terminated Students and Comparison Students (CE and Regular Students From CE Schools) - Year 1

Groups of Students	% Correctly Categorized	Canonical Correlation	First Five Discriminators In Rank Order**
		Reading	
CE students vs. students terminated			
Due to high achievement	75.8	.541*	6, 7, 5, 8, 9
Due to promotion	70.4	.376*	6, 7, 5, 3, 4
Because school lost funding	71.3	.376*	6, 7, 5, 10, 1
(All terminated students)	77.3	.548*	6, 7, 5, 4, 10
Regular students vs. students terminated			
Due to high achievement	56.7	.133*	9, 1, 10, 6, 5
Due to promotion	58.1	.195*	3, 1, 10, 2, 9
Because school lost funding	55.7	.153*	1, 6, 3, 7, 4
(All terminated students)	57.5	.155*	1, 9, 10, 6, 5
		Math	
CE students vs. students terminated			
Due to high achievement	69.5	.423*	7, 6, 5, 1, 9
Due to promotion	70.4	.345*	7, 5, 6, 1, 9
Because school lost funding	69.6	.307*	7, 6, 10, 5, 9
(All terminated students)	72.6	.469*	7, 6, 5, 1, 4
Regular students vs. students terminated			
Due to high achievement	59.8	.116*	1, 6, 7, 9, 8
Due to promotion	80.2	.195*	9, 6, 10, 8, 7
Because school lost funding	72.9	.205*	9, 1, 2, 10, 6
(All terminated students)	58.4	.148*	9, 6, 1, 10, 7

*Significant beyond the .001 level, as determined by the chi-square statistic evaluated at 9 degrees of freedom.

**The predictors are the ten types of (reading/math) instruction:

1. Hours with a regular teacher in a group of 21 or more students.
2. Hours with a regular teacher in a group of 14-20 students.
3. Hours with a regular teacher in a group of 7-13 students.
4. Hours with a regular teacher, individually or in a group of 2-6 students.
5. Hours with a special teacher ina group of 7 or more students.
6. Hours with a special teacher, individually or in a group of 2-6 students.
7. Hours with a paid aide or teaching assistant in a group of 2-10 students.
8. Hours with a peer tutor or adult volunteer.
9. Hours of independent work using programmed materials.
10. Hours of independent work using non-programmed materials.

APPENDIX C

SUPPLEMENTAL TABLES FOR CHAPTER 3

Table C-1

Numbers of Students Supporting Each Mean in Table 3-1

Transition Category	Gr.1	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
			Reading			
Regular students	541	539	545	552	561	557
Students discontinued from CE						
Due to high achievement	189	378	610	465	434	455
Due to promotion	20	31	58	178	152	130
Because school lost funding	17	49	87	161	90	116
Continuing CE students	525	537	541	545	544	549
			Math			
Regular students	540	555	555	549	558	557
Students discontinued from CE						
Due to high achievement	112	169	201	227	197	251
Due to promition	22	31	41	60	93	143
Because school lost funding	12	44	44	137	111	62
Continuing CE students	524	529	543	545	521	550

Table C-2

Numbers of Students Supporting Each Mean in Table 3-3

Transition Category	Gr.1*	Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
			Reading			
Regular students	0	275	278	284	282	280
Students discontinued from Title I						
Due to high achievement	20	408	436	359	303	287
Due to promotion	51	67	72	237	79	83
Because school lost funding	0	0	0	0	0	0
Continuing Title I students	0	145	156	127	98	71
Students discontinued from Other-Federal CE						
Due to high achievement	6	29	33	9	19	28
Due to promotion	1	3	2	38	33	33
Because school lost funding	28	91	90	39	28	22
Continuing Other-Federal CE students	0	0	0	0	0	0
Students discontinued from State/Local CE						
Due to high achievement	9	177	169	187	80	47
Due to promotion	6	22	55	66	21	17
Because school lost funding	21	183	219	179	150	80
Continuing State/Local CE students	0	0	0	0	0	0

Table C-2 (Continued)

				Math		
Regular students	0	281	272	275	278	281
Students discontinued from Title I						
Due to high achievement	16	173	152	267	176	164
Due to promotion	10	97	76	67	65	66
Because school lost funding	14	56	88	59	46	66
Continuing Title I students	0	45	38	75	43	21
Students discontinued from Other-Federal CE						
Due to high achievement	4	27	26	17	1	12
Due to promotion	0	3	0	87	39	31
Because school lost funding	4	7	20	16	21	26
Continuing Other-Federal CE students	0	0	0	0	0	0
Students discontinued from State/Local CE						
Due to high achievement	3	83	95	129	75	80
Due to promotion	0	47	65	53	8	7
Because school lost funding	15	152	79	114	127	61
Continuing State/Local CE students	0	0	0	0	0	0

*All students in grade 1 had been retained in that grade from Year 1.

Table C-3

Average Reading and Math Percentiles from Spring of Year 2 and Sample Sizes for Groups of Comparison Students in All CE Schools, by Funding Source and Grade

Transition Category		Gr.1*	Gr.2	Gr.3	Gr.4	Gr. 5	Gr.6
					Reading		
Regular students	Mean	—	57.2	62.2	63.2	57.5	56.3
	N	0	273	282	278	277	285
Title I students	Mean	35.1	24.9	21.4	21.5	17.6	18.3
	N	97	283	285	291	285	230
Other-Federal CE students	Mean	23.7	27.4	38.7	24.6	17.4	32.1
	N	3	39	31	10	7	13
State/Local CE students	Mean	42.2	34.7	38.2	21.5	17.8	16.5
	N	22	83	76	56	64	37
					Math		
Regular students	Mean	—	54.2	59.4	54.9	54.1	53.8
	N	0	278	274	275	278	276
Title I students	Mean	36.8	34.5	26.9	21.4	20.5	24.8
	N	42	189	210	223	171	172
Other-Federal CE students	Mean	56.0	39.3	36.0	31.0	26.4	26.2
	N	5	42	42	3	7	18
State/Local CE students	Mean	35.3	41.9	31.9	28.3	12.7	14.8
	N	16	44	52	46	32	26

*All students in grade 1 had been retained in that grade from Year 1.

Table C-4

Residualized Reading and Math Gain Scores from Year 1 for Students Discontinued from CE Due to High Achievement, by Grade

Group From Which Regression Model Was Developed		Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
				Reading		
Number of Students No Longer Qualified		366	587	451	424	438
CE students from schools with terminated students	Mean	10.96*	5.72*	4.48	6.43*	5.79*
	S.D.	30.82	28.04	30.77	31.46	27.56
CE students from the general sample	Mean	5.19*	6.84*	8.62*	2.84	6.10*
	S.D.	30.58	28.22	30.79	31.35	27.57
Regular students from schools with terminated students	Mean	−10.59*	−3.39*	−5.49*	−2.54	−4.01*
	S.D.	31.19	28.34	31.09	31.81	27.85
Regular students from the general sample	Mean	−8.41*	−3.09*	−4.43*	−3.91*	−1.52
	S.D.	31.02	28.25	31.20	31.61	28.16
				Math		
Number of Students No Longer Qualified		162	190	221	191	243
CE students from schools with terminated students	Mean	18.79*	2.97	−0.32	6.32	−1.29
	S.D.	34.66	38.85	37.57	43.41	38.83
CE students from the general sample	Mean	16.42*	4.36	8.75*	7.23*	0.58
	S.D.	34.47	38.69	37.10	42.95	39.50
Regular students from schools with terminated students	Mean	5.38	−12.28*	−13.52*	−6.57	−11.26*
	S.D.	34.58	38.91	37.54	43.61	38.31
Regular students from the general sample	Mean	1.30	−11.82*	−5.74	−8.56*	−10.60*
	S.D.	34.72	39.25	37.94	43.38	38.23

*Significant at or beyond the .05 level.

Table C-5

Residualized Reading and Math Gain Scores from Year 2 for Students Discontinued From Title I Due to High Achievement, by Grade

Group From Which Regression Model Was Developed		Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
				Reading		
Number of Students No Longer Qualified**		401	433	356	301	284
Title I students from schools with terminated students	Mean	6.14	4.27	18.49*	3.31	12.29*
	S.D.	36.93	34.42	33.11	31.95	35.41
Title I students from the general sample	Mean	3.31	18.12*	12.02*	4.44	2.34
	S.D.	36.48	35.00	33.50	31.50	35.86
Year 1 students who are no longer qualified for Title I in Year 2	Mean	-5.80*	-1.64	-0.17	-7.55*	0.96
	S.D.	33.35	30.25	27.55	30.91	35.11
	N	378	418	338	286	269
Regular students from schools with terminated students	Mean	-21.98*	-5.96*	-13.72*	-12.35*	0.29
	S.D.	36.76	34.31	32.91	33.29	35.60
Regular students from the general sample	Mean	-21.35*	-6.02*	-10.15*	-15.07*	-3.22
	S.D.	36.53	34.00	32.93	32.32	35.65
				Math		
Number of Students No Longer Qualified**		170	152	263	170	164
Title I students from schools with terminated students	Mean	8.60	9.52	8.54	3.57	6.15
	S.D.	38.20	38.90	38.47	38.70	51.43
Title I students from the general sample	Mean	-4.27	2.35	12.12*	8.03*	-0.15
	S.D.	37.04	38.85	38.27	38.48	49.44
Year I students who are no longer qualified for Title I in Year 2	Mean	27.22*	10.84*	10.45*	-4.02	-7.29
	S.D.	39.96	36.13	34.46	38.68	42.78
	N	157	144	248	159	157
Regular students from schools with terminated students	Mean	-12.03*	-17.12*	-14.22*	-16.73*	-8.62
	S.D.	37.04	38.96	38.16	40.16	49.43
Regular students form general sarnple	Mean	-6.22	-17.96*	-14.48*	-14.30*	-16.70*
	S.D.	37.19	38.79	38.04	39.80	49.44

*Significant at or beyond the .05 level.

**The sample sizes are for the number of students upon whom the regression models were imposed. In the cases of the same students, where Year 2 data are imposed onto the year 1 model, attrition has reduced the numbers slightly, so they are reported separately in the middle section of each sub-table. By the same token, the t-tests for the means of the same students in Year 1 and Year 2 are dependent tests, unlike all the others which are independent.

Table C-6

Residualized Reading and Math Gain Scores From Year 2 for Students Discontinued from Other-Federal CE Due to High Achievement, by Grade

Group From Which Regression Model Was Developed****		Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
				Reading		
Number of Students No Longer Qualified**		28	33	9	19	28
Other-Federal CE students from the general sample	Mean	4.82	−6.80	26.52*	50.52*	−0.37
	S.D.	45.50	32.93	19.75	58.10	33.00
Year 1 students who are no longer qualified for Other-Federal CE in Year 2	Mean	14.22	−2.89	7.09	8.46	26.77*
	S.D.	42.63	31.32	16.00	31.57	16.54
	N	26	32	9	19	27
Regular students from schools with terminated students	Mean	−15.59	−11.06	−5.77	3.18	11.84*
	S.D.	42.99	31.35	22.99	35.23	28.73
Regular students from the general sample	Mean	−15.27	−10.60	−2.20	1.61	8.35
	S.D.	43.69	31.44	22.91	35.10	28.82
				Math		
Number of Students No Longer Qualified**		26	26	17	1	12
Other-Federal CE students from the general sample	Mean	0.53	26.34*	***	***	31.20*
	S.D.	59.89	35.66			41.57
Year 1 students who are no longer qualified for Other-Federal CE in Year 2	Mean	−0.62	23.06*	−13.50	***	31.49
	S.D.	48.37	31.64	37.30		36.83
	N	24	25	16	1	12
Regular students from Schools with terminated students	Mean	−17.92	−0.57	−11.89	***	16.60
	S.D.	52.63	36.68	25.69		50.36
Regular students from the general sample	Mean	−13.12	−1.08	−10.81	***	8.56
	S.D.	51.59	36.08	25.75		50.56

*Significant at or beyond the .05 level.

**The sample sizes are for the numbers of students upon whom the regression models were imposed. In the cases of the same students, where Year 2 data are imposed onto the Year 1 model, attrition has reduced the numbers slightly, so they are reported separately in the middle section of each sub-table. By the same token, the t-tests for the means of the same students in Year 1 and Year 2 are dependent tests, unlike all the others which are independent.

***The group on which the regression model should have been computed or the group upon which it was imposed had three or fewer members.

****No model was developed for the group 'Other-Federal CE Students from schools with terminated students' because, by the way the groups were selected, there were no students in this group (see Chapter 1 for exact selection procedures).

Table C-7

Residualized Reading and Math Gain Scores from Year 2 for Students Discontinued From State/Local CE Due to High Achievement, by Grade

Group From Which Regression Model Was Developed***		Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
				Reading		
Number of Students No Longer Qualified**		168	163	187	80	47
State/Local CE students from the general sample	Mean	4.79	4.31	7.67	21.68*	28.43*
	S.D.	37.24	29.19	32.74	44.33	42.79
Year 1 students who are no longer qualified for State/ Local CE in Year 2	Mean	14.16*	-8.23*	-8.46*	-2.81	6.68
	S.D.	33.34	29.04	30.23	32.37	47.43
	N	156	153	167	74	45
Regular students from schools with terminated students	Mean	-7.21*	-6.27*	-12.17*	-5.46	7.34
	S.D.	37.03	30.04	33.00	41.38	44.22
Regular students from the general sample	Mean	-7.21*	-6.50*	-8.62*	-6.99	3.68
	S.D.	37.20	29.25	33.02	40.90	44.35
				Math		
Number of Students No Longer Qualified**		43	52	46	32	26
State/Local CE students from the general sample	Mean	-10.13	21.60*	-2.19	3.50	-1.94
	S.D.	45.04	35.95	35.95	49.48	51.54
Year 1 students who are no longer qualified for State/ Local CE in Year 2	Mean	18.23*	14.76*	-8.53*	-21.91*	-8.33
	S.D.	44.52	31.81	32.45	48.37	45.06
	N	69	85	116	73	76
Regular students from schools with terminated students	Mean	-16.77*	-7.00	-22.12*	-25.52*	-8.28
	S.D.	42.24	35.53	37.37	53.40	49.96
Regular students from the general sample	Mean	-11.29*	-8.55*	-23.65*	-22.68*	-16.49*
	S.D.	43.91	32.17	37.50	52.68	50.05

*Significant at or beyond the .05 level.

**The sample sizes are for the numbers of students upon whom the regression models were imposed. In the cases of the same students, where Year 2 data are imposed onto the Year 1 model, attrition has reduced the numbers slightly, so they are reported separately in the middle section of each sub-table. By the same token, the t-tests for the means of the same students in Year 1 and Year 2 are dependent tests, unlike all the others which are independent.

***No model was developed for the group 'State/Local CE Students from schools with terminated students' because, by the way the groups were selected, there were no students in this group (see Chapter 1 for exact selection procedures).

Table C-8

Mean Reading and Math Gain Scores from Spring of Year 2 for Students No Longer Qualified for Title I, by Grade in Year 2

Quartile Groups*		Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
				Reading		
Lowest Quartile						
	Mean	52.12	45.31	28.09	29.09	40.67
	S.D.	30.14	37.86	31.61	35.16	43.77
	N	68	91	54	65	57
	Highest Score	370	415	434	452	469
Second Quartile						
	Mean	33.32	39.21	33.48	16.64	27.94
	S.D.	39.11	34.45	29.30	32.72	38.77
	N	103	99	96	74	71
	Highest Score	400	437	466	485	506
Third Quartile						
	Mean	39.03	39.92	32.96	22.19	29.47
	S.D.	31.89	31.67	33.82	25.17	25.92
	N	118	105	103	81	74
	Highest Score	472	466	500	511	540
Highest Quartile						
	Mean	22.06	29.28	21.95	13.05	24.09
	S.D.	43.61	33.73	37.12	36.06	33.06
	N	112	138	103	81	82
	Highest Score	490	581	590	687	687
				Math		
Lowest Quartile						
	Mean	71.82	64.03	55.29	55.12	50.47
	S.D.	38.12	45.60	34.86	42.81	58.19
	N	34	30	51	41	34
	Highest Score	347	399	453	476	513
Second Quartile						
	Mean	46.69	55.56	42.00	31.49	33.26
	S.D.	41.87	47.10	43.36	35.69	38.09
	N	36	36	69	41	39
	Highest Score	378	433	486	516	564
Third Quartile						
	Mean	54.95	46.40	42.61	35.53	30.84
	S.D.	38.36	34.68	37.17	29.38	59.18
	N	44	42	51	34	43
	Highest Score	404	459	506	547	591
Highest Quartile						
	Mean	40.93	29.39	34.59	14.48	23.56
	S.D.	31.71	33.71	36.97	42.26	45.23
	N	56	44	92	54	48
	Highest Score	492	539	615	642	663

*Quartile Groups are based on spring of Year 1 Vertical-Scale Scores for students who were no longer qualified for Title I in Year 2.

Table C-9

Mean Reading and Math Gain Scores from Spring of Year 2 for Students No Longer Qualified for State/Local CE, by Grade in Year 2

Quartile Groups*		Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
				Reading		
Lowest Quartile						
	Mean	70.03	49.18	38.98	43.65	60.00
	S.D.	43.92	38.93	38.64	45.74	70.35
	N	34	38	42	20	11
	Highest Score	366	412	432	452	492
Second Quartile						
	Mean	33.66	37.11	33.33	8.43	51.67
	S.D.	34.61	26.54	34.86	42.34	25.83
	N	44	38	51	21	9
	Highest Score	396	440	463	512	534
Third Quartile						
	Mean	50.51	40.49	27.78	31.11	26.14
	S.D.	34.07	29.86	25.60	32.60	25.99
	N	45	41	48	19	14
	Highest Score	415	474	503	548	561
Highest Quartile						
	Mean	56.11	24.76	27.50	27.25	17.92
	S.D.	30.53	22.72	32.38	36.71	32.55
	N	45	46	46	20	13
	Highest Score	490	548	631	699	632
				Math		
Lowest Quartile						
	Mean	55.20	85.15	39.10	66.50	61.12
	S.D.	55.60	38.38	22.43	64.31	57.48
	N	15	20	31	16	17
	Highest Score	356	375	431	486	532
Second Quartile						
	Mean	43.75	66.83	48.59	29.00	32.88
	S.D.	37.19	38.79	38.08	35.03	28.34
	N	16	24	29	19	16
	Highest Score	374	420	462	533	583
Third Quartile						
	Mean	43.32	51.42	33.64	15.95	28.09
	S.D.	48.80	24.36	37.88	43.56	44.49
	N	22	24	28	19	22
	Highest Score	417	455	496	573	616
Highest Quartile						
	Mean	45.00	40.09	29.12	9.86	5.04
	S.D.	37.11	29.97	45.17	51.35	62.02
	N	20	22	41	21	23
	Highest Score	492	539	557	628	694

*Quartile Groups are based on spring of Year 1 Vertical-Scale Scores for students who were not longer qualified for Title I in Year 2.

Table C-10

Residualized Reading and Math Gain Scores from Year 1 for Students Promoted to a Grade With No Program, by Grade

Group From Which Regression Model Was Developed		Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
				Reading		
Number of Students Promoted**		31	55	167	144	127
CE students from schools with terminated students	Mean	3.02	2.02	-1.21	-1.36	-4.28
	S.D.	35.53	19.64	34.78	33.59	33.49
CE students from the general sample	Mean	2.17	1.30	2.15	-4.28	-4.03
	S.D.	34.41	19.62	35.57	33.49	33.50
Regular students from schools with terminated students	Mean	-8.68	-2.89	-8.66*	-6.57*	-13.24*
	S.D.	34.31	20.39	35.71	33.87	33.69
Regular students from the general sample	Mean	-7.39	-3.16	-7.24*	-8.51*	-10.44*
	S.D.	34.25	20.23	35.88	33.70	33.89
				Math		
Number of Students Promoted**		30	38	53	88	140
CE students from schools with terminated students	Mean	-4.90	3.27	3.70	4.50	-11.90*
	S.D.	36.11	25.30	42.16	51.78	44.15
CE students from the general sample	Mean	-2.34	4.26	10.68	9.58	-10.79*
	S.D.	36.65	25.55	41.60	51.91	44.41
Regular students from schools with terminated students	Mean	-11.44	-11.87*	-9.61	-0.52	-19.23*
	S.D.	37.06	25.26	42,12	53.03	44.48
Regular students from the general sample	Mean	-14.10	-10.97*	-0.80	-3.32	-18.85*
	S.D.	37.43	25.22	42.56	52.71	44.35

*Significant at or beyond the .05 level.
**The sample sizes are for the number of students upon whom the regression models were imposed.

Table C-11

Residualized Reading and Math Gain Scores from Year 1 for Students Who Lost CE Because Their Schools Lost CE Funding, by Grade

Group From Which Regression Model Was Developed		Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
				Reading		
Number of Students**		44	81	152	87	113
CE students from schools with terminated students	Mean	5.11	2.38	–4.92	6.13	4.49
	S.D.	26.52	29.46	31.77	33.00	26.79
CE students from the general sample	Mean	0.44	1.84	–1.03	3.11	4.75
	S.D.	24.60	29.21	31.80	32.27	26.73
Regular students from schools with terminated students	Mean	–14.23*	–2.93	–14.11*	0.37	–4.58
	S.D.	23.95	30.80	32.00	35.53	28.06
Regular students from the general sample	Mean	–12.25*	–3.15	–12.93*	–1.48	–1.82
	S.D.	23.96	30.56	32.07	35.00	28.74
				Math		
Number of Students**		38	40	131	108	60
CE students from schools with terminated students	Mean	2.29	–4.40	–3.06	–1.61	10.89
	S.D.	28.49	30.25	35.12	43.79	36.41
CE students from the general sample	Mean	4.00	–4.21	5.16	3.18	11.73*
	S.D.	27.97	30.10	34.92	45.92	36.69
Regular students from schools with terminated students	Mean	–5.45	–19.93*	–16.31*	–7.19	4.44
	S.D.	28.00	30.30	35.10	48.90	36.56
Regular students from the general sample	Mean	–8.36	–17.52*	–8.11*	–9.93*	4.72
	S.D.	28.11	30.60	35.34	48.17	36.46

*Significant at or beyond the .05 level.
**The sample sizes are for the numbers of students upon whom the regression models were imposed.

Table C-12

Average Residualized Reading and Math Gain Scores from Year 2 for Students Who Lost Title I When Promoted to a Grade With No CE Program and When School Lost Funding, by Grade

Group From Which Regression Model Was Developed		Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
				Reading		
Number of Students Promoted**		67	72	237	79	83
Title I students from schools with terminated students	Mean	9.23	10.62*	12.44*	6.30	8.46
	S.D.	33.77	32.00	31.36	37.03	29.55
Title I students from the general sample	Mean	4.65	22.61*	5.33	7.05	−0.50
	S.D.	32.15	32.57	31.66	36.21	30.86
Year 1 students who were promoted in Year 2 to a grade with no CE program	Mean	−43.57*	13.84*	−3.75	−2.03	−9.60*
	S.D.	32.93	29.14	30.42	34.11	25.31
	N	65	68	233	76	78
Regular students from schools with terminated students	Mean	−22.55*	6.76	−19.28*	−11.90*	−5.61
	S.D.	31.49	31.82	31.24	36.11	28.49
Regular students from the general sample	Mean	−21.00*	4.04	−15.75*	−14.16*	−9.24*
	S.D.	31.66	31.55	31.25	35.49	28.50
				Math		
Number of Students Promoted**		97	74	67	64	66
Title I students from schools with terminated students	Mean	4.61	4.06	3.58	−13.42	−17.61
	S.D.	44.59	35.92	40.17	43.77	50.46
Title I students from the general sample	Mean	−15.73*	−2.85	7.88	−9.45	−18.11*
	S.D.	46.23	35.83	40.00	43.00	51.06
Year 1 students who were promoted in Year 2 to a grade with no CE program	Mean	−18.17*	−11.08	4.74	−14.39*	−4.33
	S.D.	43.35	35.22	37.84	38.73	50.15
	N	93	69	65	64	63
Regular students from schools with terminated students	Mean	−22.33*	−22.82*	−14.95*	−32.81*	−26.69*
	S.D.	45.77	36.02	40.26	45.64	51.00
Regular students from the general sample	Mean	−19.47*	−22.67*	−16.33*	−30.55*	−34.65*
	S.D.	47.10	35.69	39.98	45.26	51.06

*Significant at or beyond the .05 level.

**The sample sizes are for the number of students upon whom the regression models were imposed. In the cases of the same students, where Year 2 data are imposed onto the Year 1 model, attrition has reduced the numbers slightly, so they are reported separately in the middle section of each sub-table. By the same token, the t-test for the means of the same students in Year 1 and Year 2 are dependent tests, unlike all the other which are independent.

Table C-13

Residualized Reading and Math Gain Scores from Year 2 for Students Who Lost Other-Federal CE When Promoted to a Grade With No CE Program, by Grade

Group From Which Regression Model Was Developed****		Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
				Reading		
Number of Students Promoted**		3	2	38	32	33
Other-Federal CE students from the general sample	Mean	41.52	−2.30	12.71	25.02	7.75
	S.D.	47.11	12.28	46.83	46.21	49.52
Year 1 students who were promoted in Year 2 to a grade with no CE program	Mean	31.91	27.00	5.15	−14.25	−20.04
	S.D.	32.17	38.18	29.38	41.24	34.19
	N	3	2	32	30	33
Regular students from schools with terminated students	Mean	17.52	10.87*	−10.22	−11.28	−11.16
	S.D.	45.45	1.46	36.04	42.78	40.66
Regular students from the general sample	Mean	18.96	5.52	−6.70	−13.79	−15.03*
	S.D.	45.96	5.06	36.07	41.42	40.89
				Math		
Number of Students Promoted**		3	0	83	38	31
Other-Federal CE students from the general sample	Mean	−4.98	***	***	−8.14	41.27*
	S.D.	15.65			54.54	57.34
Year 1 students who were promoted in Year 2 to a grade with no CE program	Mean	***	***	8.44	−11.21	10.66
	S.D.			43.47	41.67	50.18
	N	3	0	72	36	31
Regular students from schools with terminated students	Mean	−26.66*	***	−25.73*	−18.34*	18.16
	S.D.	5.57		48.43	52.71	49.06
Regular students from the general sample	Mean	−22.59	***	−26.52*	−16.10	10.02
	S.D.	4.56		48.26	52.30	49.11

*Significant at or beyond the .05 level.

**The sample sizes are for the numbers of students upon whom the regression models were imposed. In the cases of the same students, where Year 2 data are imposed onto the Year 1 model, attrition has reduced the numbers slightly, so they are reported separately in the middle section of each sub-table. By the same token, the t-tests for the means of the same students in Year 1 and Year 2 are dependent tests, unlike all the others which are independent.

***The group upon which the regression model should have been computed or the group upon which it was imposed had three or fewer members.

****No model was developed for the group 'Other-Federal CE Students from schools with terminated students' because, by the way the groups were selected there were no students in this group (see Chapter 1 for exact selection procedures).

Table C-14

Residualized Reading and Math Gain Scores from Year 2 for Students Who Lost State/Local CE When Promoted to a Grade With No CE Program, by Grade

Group From Which Regression Model Was Developed***		Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
				Reading		
Number of Students Promoted**		21	55	66	21	17
State/Local CE students from the general sample	Mean	−2.98	5.81	13.26*	20.40*	37.99*
	S.D.	34.30	33.90	38.55	34.10	29.87
Year 1 students who were promoted in Year 2 to a grade with no CE program	Mean	−6.32	−9.24	5.65	−5.30	−9.59
	S.D.	22.62	33.38	42.44	32.65	51.09
	N	21	52	62	20	17
Regular students from schools with terminated students	Mean	−14.61	−3.27	−6.87	2.24	12.82
	S.D.	34.25	33.94	38.75	39.64	33.05
Regular students from the general sample	Mean	−14.93	−4.79	−3.33	−0.81	8.88
	S.D.	34.27	33.86	38.76	38.19	33.37
				Math		
Number of Students Promoted**		47	65	53	8	7
State/Local CE students from the general sample	Mean	9.43	5.20	6.49	22.12	13.55
	S.D.	34.90	34.88	37.42	27.63	40.83
Year 1 students who were promoted in Year 2 to a grade with no CE program	Mean	23.56*	−2.09	21.01*	−21.11	24.00
	S.D.	29.75	25.11	35.60	33.94	50.08
	N	46	63	49	8	6
Regular students from schools with terminated students	Mean	3.05	−18.66*	−5.05	−9.92	4.40
	S.D.	32.52	30.38	38.45	29.93	45.20
Regular students from the general sample	Mean	8.45	−18.95*	−4.68	−6.59	−3.64
	S.D.	32.79	29.66	39.02	29.40	44.92

*Significant at or beyond the .05 level.

**The sample sizes are for the numbers of students upon whom the regression models were imposed. In the cases of the same students, where Year 2 data are imposed onto the Year 1 model, attrition has reduced the numbers slightly, so they are reported separately in the middle section of each sub-table. By the same token, the t-tests for the means of the same students in Year 1 and Year 2 are dependent tests, unlike all the others which are independent.

***No model was developed for the group 'State/Local CE Students from schools with terminated students' because, by the way the groups were selected, there were no students in this group (see Chapter 1 for exact selection procedures).

Table C-15

Residualized Math Gain Scores from Year 2 for Students Who Lost Title I CE When School Lost Funding, by Grade (No School Lost Title I Reading)

Group From Which Regression Model Was Developed		Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
				Math		
Number of Students**		56	88	58	46	66
Title I students from schools with terminated students	Mean	12.81	26.62*	−5.61	9.90	9.52
	S.D.	30.47	37.62	47.69	39.45	44.50
Title I students from the general sample	Mean	2.20	19.37*	−1.69	15.35*	4.78
	S.D.	30.02	37.73	47.17	39.21	38.58
Year 1 students who in Year 2 were in a school that lost CE funding	Mean	29.06*	22.01*	−21.69*	−0.80	0.64
	S.D.	30.17	36.01	37.05	33.95	41.01
	N	52	84	53	45	63
Regular students from schools with terminated students	Mean	−5.91	0.07	−26.38*	−12.14	−3.72
	S.D.	29.97	37.53	46.07	41.04	38.61
Regular students from the general sample	Mean	0.80	−1.11	−27.16*	−9.40	−11.77*
	S.D.	30.16	37.98	46.15	40.65	38.58

*Significant at or beyond the .05 level.

**The sample sizes are for the numbers of students upon whom the regression models were imposed. In the cases of the same students, where Year 2 data are imposed onto the Year 1 model, attrition has reduced the numbers slightly, so they are reported separately in the middle section of the table. By the same token, the t-test for the means of the same students in Year 1 and Year 2 are dependent tests, unlike all the others which are independent.

Table C-16

Residualized Reading and Math Gain Scores from Year 2 for Students Who Lost Other-Federal CE When School Lost Funding, by Grade

Group From Which Regression Model Was Developed****		Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
				Reading		
Number of Students**		90	88	39	27	22
Other-Federal CE students from the general sample	Mean	5.59	1.40	8.79	43.00	29.70
	S.D.	35.15	26.26	46.41	47.10	60.01
Year 1 students who in Year 2 were in a school that lost CE funding	Mean	−3.82	−15.94*	3.81	−2.15	4.07
	S.D.	33.02	26.02	27.31	27.62	25.19
	N	86	84	36	25	18
Regular students from schools with terminated students	Mean	−14.20*	−7.85*	−15.79*	−8.84	0.54
	S.D.	31.75	27.10	34.43	33.68	32.90
Regular students from the general sample	Mean	−14.08*	−5.72	−12.27*	−10.03	−3.46
	S.D.	32.57	26.12	34.44	31.63	32.83
				Math		
Number of Students**		7	18	0	20	26
Other-Federal CE students from the general sample	Mean	24.24	18.54	***	23.41	32.90*
	S.D.	40.10	36.19		27.80	61.90
Year 1 students who in Year 2 were in a school that lost CE funding	Mean	26.79	0.58	−24.74	12.79	−3.45
	S.D.	36.31	22.11	34.85	24.36	42.93
	N	6	16	15	19	24
Regular students from schools with terminated students	Mean	−3.45	−8.46	−34.30*	−9.85	3.56
	S.D.	33.84	38.00	41.05	37.54	47.02
Regular students from the general sample	Mean	−0.72	−8.92	−32.24*	6.47	−11.88
	S.D.	32.83	36.93	40.34	36.83	46.91

*Significant at or beyond the .05 level.

**The sample sizes are for the numbers of students upon whom the regression models are imposed. In the cases of the same students, where Year 2 data are imposed onto the Year 1 model, attrition has reduced the numbers slightly, so they are reported separately in the middle section of each sub-table. By the same token, the t-tests for the means of the same students in Year 1 and Year 2 are dependent tests, unlike all the others which are independent.

***The group on which the regression model should have been computed or the group upon which it was imposed had three or fewer cases.

****No model was developed for the group 'Other-Federal CE Students from schools with terminated students' because, by the way the groups were selected, there were no students in this group (see Chapter 1 for exact selection procedures).

Table C-17

Residualized Reading and Math Gain Scores from Year 2 for Students Who Lost State/Local CE When Their School Lost Funding, by Grade

Group From Which Regression Model Was Developed***		Gr.2	Gr.3	Gr.4	Gr.5	Gr.6
				Reading		
Number of Students**		180	215	177	150	78
State/Local CE students from the general sample	Mean	−0.39	−1.30	14.27*	11.46*	15.96*
	S.D.	41.10	30.62	42.10	33.08	34.25
Year 1 students who in Year 2 were in a school that lost CE funding	Mean	−10.57*	−5.98*	16.41*	−1.53	9.21
	S.D.	34.05	27.54	31.99	34.87	29.47
	N	163	203	168	143	75
Regular students from schools with terminated students	Mean	−13.01*	−11.33*	−5.53	−7.63*	−1.69
	S.D.	39.69	31.49	42.06	32.84	36.09
Regular students from the general sample	Mean	−12.48*	−12.03*	−1.97	−10.52*	−5.12
	S.D.	40.02	30.67	42.07	31.86	36.24
				Math		
Number of Students**		149	76	114	126	60
State/Local CE students from the general sample	Mean	0.55	2.19	8.79	15.18	8.77
	S.D.	44.62	41.14	40.44	36.69	49.71
Year 1 students who in Year 2 were in a school that lost CE funding	Mean	6.93	−12.04	22.16*	−1.71	16.82*
	S.D.	41.74	35.06	42.80	35.24	36.24
	N	137	74	109	118	58
Regular students from schools with terminated students	Mean	−4.99	−22.26*	−8.57	−10.45*	−1.18
	S.D.	43.40	38.73	39.39	38.22	47.77
Regular students from the general sample	Mean	0.17	−22.71*	−9.52*	−8.16	−9.17
	S.D.	43.25	38.69	39.65	37.86	47.88

*Significant at or beyond the .01 level.

**The sample sizes are for the numbers of students upon whom the regression models are imposed. In the cases of the same students, where Year 2 data are imposed onto the Year 1 model, attrition has reduced the numbers slightly, so they are reported separately in the middle section of each sub-table. By the same token, the t-tests for the means of the same students in Year 1 and Year 2 are dependent tests, unlike all the others which are independent.

***No model was developed for the group 'State/Local CE students from schools with terminated students' because, by the way the groups were selected, there were no students in this group (see Chapter 1 for exact selection procedures).

APPENDIX D

SUPPLEMENTAL TABLES FOR CHAPTER 4

Table D-1

Significant Predictors of Year 1 Reading Achievement Growth for Three Kinds of Students Terminated from CE Programs

Service Items as Predictors			Service Composites as Predictors		
Grade* (N)	Significant Predictors	Variance Accounted For**	Grade* (N)	Significant Predictors	Variance Accounted For**
Students No Longer Qualified for CE					
2 (351)	Hours with a reading tutor	.014			
	Amount of individualized instruction	.014			
	Teacher experience and training	.016			
	Special teacher, 7 or more students	.011			
3 (551)	Non-programmed independent study	.016			
	Programmed independent study	.009	None		
	Hours with reading tutor	.007			
4 (445)	Regular teacher, 1 to 6 students	.017			
	Paid aide, 1 to 10 students	.017			
6 (412)	Regular teacher, 14 to 20 students	.011			
Students Promoted to a Grade With No CE Program					
2 (31)	Hours with a reading tutor	.129	2 (31)	Cost of services offered	.200
3 (48)	Summer intellectual experience	.210	3 (48)	Summer intellectual experience	.210
	Regular teacher, 1 to 6 students	.087			
4 (147)	Paid aide, 1 to 10 students	.038			
	Regular teacher, 7 to 13 students	.027			
5 (135)	Teacher experience and training	.056			
6 (117)	Regular teacher, 14 to 20 students	.063			

Table D-1 (Continued)

School Lost Funding for CE Program					
2 (41)	Individualization of instruction	.187	2 (41)	Cost of resources offered	.112
3 (72)	Hours with a reading tutor	.071	3 (72)	Summer intellectual experience	.066
5 (85)	Teacher experience and training	.125			
6 (105)	Non-programmed independent study	.051			
	Regular teacher, 7 to 13 students	.038			

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residualized gain score (i.e., with pretest taken out) as each new variable is entered in a stepwise regression.

Table D-2

Significant Predictors of Year 1 Math Achievement Growth for Three Kinds of Students Terminated from CE Programs

Service Items as Predictors			Service Composites as Predictors		
Grade* (N)	Significant Predictors	Variance Accounted For**	Grade* (N)	Significant Predictors	Variance Accounted For**
Students No Longer Qualified for CE					
2 (147)	Programmed independent study	.036	2 (147)	Total instruction time offered	.030
	Regular teacher, 1 to 6 students	.030			
3 (175)	Special teacher, 7 or more students	.025			
4 (216)	Special teacher, 1 to 6 students	.038			
	Regular teacher, 14 to 20 students	.022			
	Programmed independent study	.020			
	Non-programmed independent study	.018			
	Special teacher, 7 or more students	.028			
5 (186)	Regular teacher, 7 to 13 students	.052			
	Teacher experience and training	.027			
6 (225)	Hours with a math tutor	.044			

Table D-2 (Continued)

Students Promoted to a Grade with No CE Program					
2	Regular teacher, 14 to 20 students	.145			
(30)	Individualization of instruction	.190			
3	Regular teacher, 14 to 20 students	.110			
(35)					
4	Teacher experience and training	.181			
(45)	Summer math experience	.119			
5	Regular teacher, 1 to 6 students	.153			
(64)					
6	Summer math experience	.031	6	Summer math experience	.031
(132)	Teacher experience and training	.031	(132)		
School Lost Funding for CE Program					
2	Hours with a math tutor	.126			
(37)	Regular teacher, 14 to 20 students	.184			
	Summer math experience	.086			
	Individualization of instruction	.116			
	Regular teacher, 1 to 6 students	.070			
	Non-programmed independent study	.064			
3	Summer intellectual experience	.129	3	Summer intellectual experience	.129
(39)			(39)		
4	Teacher experience and training	.054	4	Cost of resources offered	.140
(120)	Regular teacher, 1 to 6 students	.033	(120)		
5	Teacher experience and training	.062			
(108)	Special teacher, 1 to 6 students	.059			
6	Programmed independent study	.132			
(54)					

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residualized gain score (i.e., with pretest taken out) as each new variable is entered in a stepwise regression.

Table D-3

Significant Predictors of Year 2 Reading Achievement Growth for Three Kinds of Students Terminated from Reading CE Programs Because They Were No Longer Qualified

Service Items as Predictors			Service Composites as Predictors		
Grade* (N)	Significant Predictors	Variance Accounted For**	Grade* (N)	Significant Predictors	Variance Accounted For**
Students No Longer Qualified for Title I					
2 (305)	Non-programmed independent study	.016			
	Individualization of instruction	.013			
	Regular teacher, 21 or more students	.015			
3 (355)	Special teacher, 7 or more students	.023			
	Regular teacher, 7 to 13 students	.011			
	Teacher experience and training	.016			
4 (308)	Regular teacher, 14 to 20 students	.022	4 (308)	Cost of resources offerd	.018
	Special teacher, 7 or more students	.013			
5 (247)	Summer intellectual experience	.056	5 (247)	Summer intellectual experience	.056
	Teacher experience and training	.031			
	Special teacher, 7 or more students	.028			
	Individualization of instruction	.015			
6 (193)	Teacher experience and training	.048	6 (193)	Cost of resources offered	.022
	Paid aide, 1 to 10 students	.019			
Students No Longer Qualified for Other-Federal CE					
2 (22)	Individualization of instruction	.203			
	Hours with a reading tutor	.297			
3 (31)	Regular teacher, 7 to 13 students	.153			
	Summer reading experience	.151			
5 (17)	Non-programmed independent study	.345	5 (17)	Cost of resources offered	.408
6 (25)	Regular teacher, 14 to 20 students	.184			

Table D-3 (Continued)

Students No Longer Qualified for State/Local CE					
3	Regular teacher, 14 to 20 students	.062			
(115)	Paid aide, 1 to 10 students	.040			
4	Individualization of instruction	.054			
(161)	Non-programmed independent study	.029			
5	Special teacher, 1 to 6 students	.089	5	Summer intellectual experience	.086
(70)	Summer intellectual experience	.096	(70)		
6	Hours with a reading tutor	.425	6	Cost of resources offered	.356
(34)	Regular teacher, 1 to 6 students	.117	(34)		
	Special teacher, 7 or more students	.067			

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residualized gain score (i.e., with pretest taken out) as each new variable is entered in a stepwise regression.

Table D-4

Significant Predictors of Year 2 Math Achievement Growth for Three Kinds of Students Terminated from Math CE Programs Because They Were No Longer Qualified

Service Items as Predictors			Service Composites as Predictors		
Grade* (N)	Significant Predictors	Variance Accounted For**	Grade* (N)	Significant Predictors	Variance Accounted For**
Students No Longer Qualified for Title I					
2 (131)	Hours with a math tutor	.117	2 (131)	Cost of resources offered	.069
	Regular teacher, 7 to 13 students	.049			
3 (120)	Teacher experience and training	.067			
5 (132)	Paid aide, 1 to 10 students	.031			
	Regular teacher, 21 or more students	.038			
6 (104)	Hours with a math tutor	.284	6 (104)	Cost of resources offered	.116
	Regular teacher, 1 to 6 students	.048			
	Paid aide, 1 to 10 students	.083			
Students No Longer Qualified for Other-Federal CE					
2 (19)	Special teacher, 1 to 6 students	.403	2 (19)	Cost of resources offered	.254
6 (11)	Regular teacher, 1 to 6 students	659	6 (11)	Cost of resources offered	.782
Students No Longer Qualified for State/Local CE					
4 (114)	Special teacher, 1 to 6 students	.045	4 (114)	Summer intellectual experience	.043
	Non-programmed independent study	.047			
5 (70)	Regular teacher, 1 to 6 students	.059	5 (70)	Total instruction time offered	.127
	Teacher experience and training	.065			

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residualized gain score (i.e., with pretest taken out) as each new variable is entered in a stepwise regression.

Table D-5

Significant Predictors of Year 2 Reading Achievement Growth for Three Kinds of Students Terminated from Reading CE Programs Because They Were Promoted to a Grade with No CE Program

Service Items as Predictors			Service Composites as Predictors		
Grade* (N)	Significant Predictors	Variance Accounted For**	Grade* (N)	Significant Predictors	Variance Accounted For**
Students Promoted Out of Title I					
4 (221)	Individualization of instruction	.034	None		
6 (39)	Teacher experience and training	.128			
	Special teacher, 1 to 6 students	.125			
	Hours with reading tutor	.088			
Students Promoted Out of Other-Federal CE					
4 (27)	Regular teacher, 1 to 6 students	.254	4 (27)	Cost of resources offered	.318
	Special teacher, 7 or more students	.123			
5 (12)	Hours with a reading tutor	.538			
Students Promoted Out of State/Local CE					
2 (12)	Programmed independent study	.598			
3 (46)	Special teacher, 7 or more students	.095			
	Regular teacher, 1 to 6 students	.088			
5 (19)	Paid aide, 1 to 10 students	.567	None		
	Non-programmed independent study	.146			
6 (14)	Regular teacher, 7 to 13 students	.433			

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residualized gain score (i.e., with pretest taken out) as each new variable is entered in a stepwise regression.

Table D-6

Significant Predictors of Year 2 Math Achievement Growth for Three Kinds of Students Terminated from Math CE Programs Because They Were Promoted to a Grade With No CE Program

Service Items as Predictors			Service Composites as Predictors		
Grade* (N)	Significant Predictors	Variance Accounted For**	Grade* (N)	Significant Predictors	Variance Accounted For**
Students Promoted Out of Title I					
2 (64)	Paid aide, 1 to 10 students	.072			
4 (61)	Regular teacher, 7 to 13 students	.168			
	Programmed independent study	.124			
5 (48)	Regular teacher, 1 to 6 students	.155	None		
6 (47)	Individualization of instruction	.243			
	Regular teacher, 14 to 20 students	.074			
Students Promoted Out of Other-Federal CE					
4 (72)	Non-programmed independent study	.174			
	Special teacher, 7 or more students	.094	None		
Student Promoted Out of State/Local CE					
4 (48)	Paid aide, 1 to 10 students	.083			
			5 (8)	Total instruction time offered	.643

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residualized gain score (i.e., with pretest taken out) as each new variable is entered in a stepwise regression.

Table D-7

Significant Predictors of Year 2 Reading Achievement Growth for Two Kinds of Students Terminated from Reading CE Programs Because Their Schools Lost Funding for CE Programs

Service Items as Predictors			Service Composites as Predictors		
Grade* (N)	Significant Predictors	Variance Accounted For**	Grade* (N)	Significant Predictors	Variance Accounted For**
Students in Schools That Lost Other-Federal CE Funding					
2 (88)	Regular teacher, 21 or more students	.131			
	Regular teacher, 1 to 6 students	.044			
	Summer reading experience	.044			
	Summer intellectual experience	.107			
	Non-programmed independent study	.038			
	Special teacher, 1 to 6 students	.038			
3 (84)	Teacher experience and training	.225	3 (84)	Cost of resources offered	.055
	Special teacher, 1 to 6 students	.068		Total instruction time offered	.068
				Summer reading experience	0.46
4 (33)	Regular teacher, 14 to 20 students	.210			
Students in Schools That Lost State/Local CE Funding					
2 (137)	Individualization of instruction	.273	2 (137)	Total instruction time offered	.088
	Regular teacher, 14 to 20 students	.066		Summer intellectual experience	.026
	Hours with a reading tutor	.020			
3 (146)	Regular teacher, 1 to 6 students	.038			
			4 (123)	Cost of resources offered	.035
5 (98)	Teacher experience and training	.045			
6 (34)	Regular teacher, 21 or more students	.150			

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residualized gain score (i.e., with pretest taken out) as each new variable is entered in a stepwise regression.

Table D-8

Significant Predictors of Year 2 Math Achievement Growth for Three Kinds of Students Terminated from Math CE Programs Because Their Schools Lost Funding for CE Programs

Service Items as Predictors			Service Composites as Predictors		
Grade* (N)	Significant Predictors	Variance Accounted For**	Grade* (N)	Significant Predictors	Variance Accounted For**
Students in Schools That Lost Title I Funding					
			2 (30)	Total instruction time offered Cost of resources offered	.176 .160
4 (57)	Individualization of instruction Hours with a math tutor	.320 .054	4 (57)	Cost of resources offered	.085
5 (40)	Regular teacher, 21 or more students	.104	5 (40)	Cost of resources offered Summer intellectual experience	.102 .092
6 (60)	Hours with a math tutor	.073			
Students in Schools That Lost Other-Federal CE Funding					
4 (14)	Programmed independent study Regular teacher, 1 to 6 students	.345 .317	None		
Students in Schools That Lost State/Local CE Funding					
2 (125)	Paid aide, 1 to 10 students Regular teacher, 14 to 20 students	.125 .075	2 (125)	Summer math experience Total instruction time offered	.077 .058
4 (99)	Non-programmed independent study Regular teacher, 14 to 20 students	.064 .038	4 (99)	Cost of resources offered	.083
5 (111)	Programmed independent study Non-programmed independent study	.091 .041			
6 (44)	Summer math experience Regular teacher, 1 to 6 students	.194 .155	6 (44)	Summer math experience	.194

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residualized gain score (i.e., with pretest taken out) as each new variable is entered in a stepwise regression.

Table D-9

Significant Predictors of Year 2 Reading Achievement Growth for Students Terminated from Title I Reading CE in Year 2 Because They Were No Longer Qualified, by Grade and Year 1 Spring Quartiles

Service Items as Predictors			Service Composites as Predictors		
Grade* (N)	Significant Predictors	Variance Accounted For**	Grade* (N)	Significant Predictors	Variance Accounted For**
		Lowest Quartile			
2 (48)	Regular teacher, 21 or more students	.106			
	Individualization of intruction	.098			
4 (47)	Non-programmed independent study	.106			
5 (57)	Special teacher, 7 or more students	.115			
			6 (41)	Summer intellectual experience	.035
				Summer reading experience	.107
		Second Quartile			
2 (83)	Individualization of instruction	.121			
	Regular teacher, 14 to 20 students	.084			
3 (82)	Special teacher, 7 or more students	.073			
5 (58)	Hours with a reading tutor	.233	5 (58)	Summer reading experience	.166
	Teacher experience and training	.089			
	Summer intellectual experience	.060			

Table D-9 (Continued)

		Third Quartile			
2 (92)	Summer reading experience	.083	2 (92)	Summer reading experience	.083
3 (90)	Teacher experience and training	.201			
	Hours with a reading tutor	.071			
	Special teacher, 7 or more students	.034			
4 (93)	Regular teacher, 14 to 20 students	.064			
5 (66)	Hours with a reading tutor	.077			
6 (49)	Regular teacher, 1 to 6 students	.165	6 (49)	Summer intellectual experience	.122
				Cost of resources offered	.072
		Highest Quartile			
2 (82)	Programmed independent study	.079	2 (82)	Summer intellectual experience	.073
	Summer intellectual experience	.049			
3 (112)	Regular teacher, 7 to 13 students	.050			
4 (92)	Individualization of instruction	.087	4 (92)	Cost of resources offered	.077
	Special teacher, 7 or more students	.066			
5 (66)	Individualization of instruction	.098			
	Regular teacher, 7 to 13 students	.082			
	Paid aide, 1 to 10 students	.052			
6 (49)	Hours with a reading tutor	.316			

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residualized gain score (i.e., with pretest taken out) as each new variable is entered in a stepwise regression.

Table D-10

Significant Predictors of Year 2 Reading Achievement Growth for Students Terminated from State/Local Reading CE Programs in Year 2 Because They Were No Longer Qualified, by Grade and Year 1 Spring Quartiles

Service Items as Predictors			Service Composites as Predictors		
Grade* (N)	Significant Predictors	Variance Accounted For**	Grade* (N)	Significant Predictors	Variance Accounted For**
		Lowest Quartile			
			2 (20)	Cost of resources offered	.128
3 (21)	Regular teacher, 21 or more students	.244			
6 (10)	Regular teacher, 1 to 6 students	.920	6 (10)	Cost of resources offered	.638
		Second Quartile			
3 (25)	Regular teacher, 1 to 6 students	.301	3 (25)	Cost of resources offered	.340
4 (46)	Special teacher, 7 or more students	.143			
5 (16)	Special teacher, 1 to 6 students Regular teacher, 21 or more students	.659 .113	5 (16)	Cost of resources offered	.311
		Third Quartile			
2 (37)	Individualization of instruction Teacher experience and training	.184 .124	2 (37)	Cost of resources offered	.119
4 (42)	Regular teacher, 14 to 20 students	.202			
6 (9)	Regular teacher, 14 to 20 students	.690			

Table D-10 (Continued)

		Highest Quartile			
2 (38)	Special teacher, 1 to 6 students Summer intellectual experience	.137 .099			
3 (38)	Summer intellectual experience Teacher experience and training	.183 .124	3 (38)	Summer intellectual experience Total instruction time offered	.183 .120
4 (41)	Individualization of instruction	.104			
6 (10)	Regular teacher, 14 to 20 students	.809			

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residualized gain score (i.e., with pretest taken out) as each new variable is entered in a stepwise regression.

Table D-11

Significant Predictors of Year 2 Math Achievement Growth for Students Terminated from Title I Math CE in Year 2 Because They Were No Longer Qualified, by Grade and Year 1 Spring Quartiles

Service Items as Predictors			Service Composites as Predictors		
Grade* (N)	**Significant Predictors**	**Variance Accounted For****	**Grade* (N)**	**Significant Predictors**	**Variance Accounted For****
		Lowest Quartile			
			2 (38)	Total instruction time offered	.126
3 (35)	Teacher experience and training Special teacher, 7 or more students	.276 .094			
4 (21)	Regular teacher, 21 or more students	.216			

Table D-11 (Continued)

		Second Quartile			
2	Hours with a math tutor	.215	2	Total instruction time offered	.256
(34)	Regular teacher, 7 to 13 students	.199	(34)		
	Summer intellectual experience	.077			
	Summer math experience	.132			
	Teacher experience and training	.111			
	Paid aide, 1 to 10 students	.040			
3	Special teacher, 7 or more students	.174			
(28)					
4	Programmed independent study	.081			
(49)	Summer math experience	.089			
6	Non-programmed independent study	.680	6	Summer math experience	.435
(10)	Regular teacher, 7 to 13 students	.178	(10)		
		Third Quartile			
2	Paid aide, 1 to 10 students	.407	2	Cost of resources offered	.309
(37)			(37)		
4	Regular teacher, 1 to 6 students	.068			
(69)	Regular teacher, 21 or more students	.100			
6	Paid tutor, 1 to 10 students	.342	6	Total instruction time offered	.347
(18)			(10)	Summer math experience	.236
		Highest Quartile			
2	Non-programmed independent study	.397			
(22)	Special teacher, 7 or more students	.195			
	Regular teacher, 7 to 13 students	.153			
3	Programmed independent study	.185			
(27)					
			4	Total instruction time offered	.067
			(85)		
6	Hours with a math tutor	.334	6	Cost of resources offered	.148
(68)	Regular teacher, 1 to 6 students	.091	(68)		
	Paid aide, 1 to 10 students	.151			
	Special teacher, 7 or more students	.041			

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residualized gain score (i.e., with pretest taken out) as each new variable is entered in a stepwise regression.

Table D-12

Significant Predictors of Year 2 Math Achievement Growth for Students Terminated from State/Local Math CE Programs in Year 2 Because They Were No Longer Qualified, by Grade and Year 1 Spring Quartiles

Service Items as Predictors			Service Composites as Predictors		
Grade* (N)	Significant Predictors	Variance Accounted For**	Grade* (N)	Significant Predictors	Variance Accounted For**
		Lowest Quartile			
3 (17)	Teacher experience and training	.293	None		
5 (6)	Regular teacher, 7 to 13 students	.809			
		Second Quartile			
2 (7)	Regular teacher, 1 to 6 students	.876	2 (7)	Cost of resources offered	.738
	Regular teacher, 21 or more students	.105			
6 (8)	Regular teacher, 7 to 13 students	.624			
		Third Quartile			
			6 (5)	Total instruction time offered	.914
		Highest Quartile			
4 (26)	Special teacher, 1 to 6 students	.166	None		
5 (37)	Special teacher, 7 or more students	.150			
6 (45)	Teacher experience and training	.119			

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residualized gain score (i.e., with pretest taken out) as each new variable is entered in a stepwise regression.

Table D-13

Significant Predictors of Year 2 Reading Achievement Growth (Assessed Using Year 2 Pretests and Year 1 Change-Scores) for Students Terminated from Three Kinds of Reading CE Programs in Year 2 Because They Were No Longer Qualified

Service Items as Predictors			Service Composites as Predictors		
Grade* (N)	Significant Predictors	Variance Accounted For**	Grade* (N)	Significant Predictors	Variance Accounted For**
Students No Longer Qualified for Title I					
2 (288)	Non-programmed independent study	.019			
	Regular teacher, 14 to 20 students	.016			
3 (345)	Special teacher, 7 or more students	.013			
4 (293)	Regular teacher, 14 to 20 students	.016			
	Regular teacher, 21 or more students	.014			
5 (236)	Summer intellectual experience	.035	5 (235)	Summer intellectual experience	.035
	Special teacher, 7 or more students	.030			
6 (184)	Paid aide, 1 to 10 students	.045			
	Non-programmed independent study	.027			
	Summer intellectual experience	.024			
	Regular teacher, 1-6 students	.021			
Students No Longer Qualified for Other-Federal CE					
2 (21)	Individualization of instruction	.271			
	Hours with a reading tutor	.222			
3 (30)	Regular teacher, 7 to 13 students	.262			
5 (17)	Non-programmed individual study	.358	5 (17)	Cost of resources offered	.325
6 (24)	Regular teacher, 14 to 20 students	.384			

Table D-13 (Continued)

Students No Longer Qualified for State/Local CE					
2 (122)	Paid aide, 1 to 10 students	.036	2 (122)	Cost of resources offered	.039
3 (110)	Regular teacher, 14 to 20 students	.081			
	Paid aide, 1 to 10 students	.037			
4 (148)	Individualization of instruction	.058			
6 (34)	Regular teacher, 1 to 6 students	.467	6 (34)	Cost of resources offered	.403
	Hours with a reading tutor	.153			
	Special teacher, 7 or more students	.096			

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residualized gain score (i.e., with pretest taken out) as each new variable is entered in a stepwise regression.

Table D-14

Significant Predictors of Year 2 Math Achievement Growth (Assessed Using Year 2 Pretests and Year 1 Change-Scores) For Students Terminated from Three Kinds of Math CE Programs in Year 2 Because They Were No Longer Qualified

Service Items as Predictors			Service Composites as Predictors		
Grade* (N)	Significant Predictors	Variance Accounted For**	Grade* (N)	Significant Predictors	Variance Accounted For**
Students No Longer Qualified for Title I					
2 (122)	Hours with a math tutor	.154	2 (122)	Cost of resources offered	.102
	Special teacher, 1 to 6 students	.053			
4 (213)	Individualization of instruction	.056	4 (213)	Cost of resources offered	.031
	Regular teacher, 1 to 6 students	.052			
	Special teacher, 1 to 6 students	.019			
	Hours with a math tutor	.017			
5 (123)	Regular teacher, 1 to 6 students	.048			
6 (100)	Regular teacher, 1 to 6 students	.172	6 (100)	Cost of resources offered	.109
	Hours with a math tutor	.060			
	Programmed independent study	.044			
Students No Longer Qualified for Other-Federal CE					
6 (11)	Regular teacher, 1-6 students	.615	6 (11)	Cost of resources offered	.739
				Summer math experience	.131
Students No Longer Qualified for State/Local CE					
3 (43)	Regular teacher, 1 to 6 students	.151			
4 (105)	Summer intellectual experience	.068	4 (105)	Total instruction time offered	.071
			5 (68)	Summer intellectual experience	.077
				Total instruction time offered	.087

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residualized gain score (i.e., with pretest and previous year's gain taken out) as each new variable is entered in a stepwise regression.

Table D-15

Significant Predictors of Year 2 Reading Achievement Growth (Assessed Using Year 2 Pretests and Year 1 Change-Scores) for Students Terminated from Three Kinds of Reading CE Programs in Year 2 Because They Were Promoted to a Grade With No CE

Service Items as Predictors			Service Composites as Predictors		
Grade (N)	Significant Predictors	Variance Accounted For**	Grade* (N)	Significant Predictors	Variance Accounted For**
Students Promoted Out of Title I					
3 (64)	Regular teacher, 1 to 6 students	.085			
4 (217)	Individualization of instruction	.025			
5 (64)	Regular teacher, 1 to 6 students	.083	5 (64)	Summer reading experience	.075
	Summer reading experience	.059			
6 (36)	Hours with a reading tutor	.287			
	Regular teacher, 1 to 6 students	.086			
Students Promoted Out of Other-Federal CE Programs					
4 (22)	Hours with a reading tutor	.491	4 (22)	Cost of resources offered	.270
	Regular teacher, 1 to 6 students	.132			
	Special teacher, 7 or more students	.099			
5 (11)	Programmed independent study	.584			

Table D-15 (Continued)

Students Promoted Out of State/Local CE Programs					
2 (12)	Non-programmed independent study	.558	2 (12)	Total instruction time offered	.498
3 (43)	Special teacher, 7 or more students	.238			
4 (47)	Total instruction time offered	.111			
5 (18)	Paid aide, 1 to 10 students Special teacher, 1 to 6 students	.618 .129	5 (18)	Summer reading experience	.265
6 (14)	Regular teacher, 21 or more students	.661			

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residualized gain score (i.e., with pretest and previous year's gain taken out) as each new variable is entered in a stepwise regression.

Table D-16

Significant Predictors of Year 2 Math Achievement Growth (Assessed Using Year 2 Pretests and Year 1 Change-Scores) for Students Terminated from Three Kinds of Math CE Programs in Year 2 Because They Were Promoted to a Grade With No CE

Service Items and Predictors			Service Composites as Predictors		
Grade* (N)	Significant Predictors	Variance Accounted For**	Grade* (N)	Significant Predictors	Variance Accounted For**
Students Promoted Out of Title I					
4 (59)	Programmed independent study	.221		None	
6 (45)	Regular teacher, 14 to 20 students	.134			
	Individualization of instruction	.173			
Students Promoted Out of Other-Federal CE Programs					
4 (63)	Non-programmed independent study	.191			
	Individualization of instruction	.107			
	Regular teacher, 7 to 13 students	.053		None	
	Hours with a math tutor	.063			
Students Promoted Out of State/Local CE Programs					
	None			None	

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residualized gain score (i.e., with pretest and previous year's gain taken out) as each new variable is entered in a stepwise regression.

Table D-17

Significant Predictors of Year 2 Reading Achievement Growth (Assessed Using Year 2 Pretests and Year 1 Change-Scores) for Students Terminated from Two Kinds of Reading CE Programs in Year 2 Because Their Schools Lost Funding for CE Programs

Service Items as Predictors			Service Composites as Predictors		
Grade* (N)	Significant Predictors	Variance Accounted For**	Grade* (N)	Significant Predictors	Variance Accounted For**
Students in Schools That Lost Other-Federal CE Funding					
2 (84)	Regular teacher, 21 or more students	.157			
	Special teacher, 1 to 6 students	.072			
3 (81)	Special teacher, 1 to 6 students	.156	3 (81)	Summer reading experience	.066
	Summer reading experience	.055			
	Regular teacher, 21 or more students	.053			
4 (31)	Individualization of instruction	.212			
	Special teacher, 1 to 6 students	.161			
Students in Schools That Lost State/Local CE Funding					
2 (128)	Individualization of instruction	.115	2 (128)	Total instruction time offered	.065
	Regular teacher, 14 to 20 students	.079			
3 (141)	Regular teacher, 1 to 6 students	.035	3 (141)	Cost of resources offered	.035
4 (117)	Special teacher, 7 or more students	.059			
	Programmed independent study	.045			
	Regular teacher, 21 or more students	.050			
	Regular teacher, 1 to 6 students	.038			
6 (33)	Hours with a reading tutor	.284	6 (33)	Summer intellectual experience	.200
	Summer intellectual experience	.108		Total instruction time offered	.129
	Regular teacher, 14 to 20 students	.123			

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residual gain score (i.e., with pretest and previous year's gain taken out) as each new variable is entered in a stepwise regression.

Table D-18

Significant Predictors of Year 2 Math Achievement Growth (Assessed Using Year 2 Pretests and Year 1 Change-Scores) for Students Terminated from Three Kinds of Math CE Programs in Year 2 Because Their Schools Lost Funding for CE Programs

Service Items as Predictors			Service Composites as Predictors		
Grade* (N)	Significant Predictors	Variance Accounted For**	Grade* (N)	Significant Predictors	Variance Accounted For**
Students in Schools That Lost Title I Funding					
2 (29)	Regular teacher, 21 or more students	.245			
	Individualizaion of instruction	.116			
3 (59)	Special teacher, 1 to 6 students	.095			
	Hours with a math tutor	.091			
4 (52)	Individualization of instruction	.234			
5 (40)	Regular teacher, 21 or more students	.172	5 (40)	Cost of resources offered	.162
Students in Schools That Lost Other-Federal CE Funding					
4 (13)	Programmed independent study	.454			
	Individualization of instruction	.309			
	Regular teacher, 1 to 6 students	.109	None		
6 (8)	Regular teacher, 14 to 20 students	.791			

Table D-18 (Continued)

Students in Schools That Lost State/Local CE Funding					
2	Regular teacher, 14 to 20 students	.129	2	Summer math experience	.036
(116)			(116)	Total instruction time offered	.064
				Cost of resources offered	.042
4	Paid aide, 1 to 10 students	.087	4	Total instruction time offered	.089
(96)	Regular teacher, 14 to 20 students	.072	(96)		
5	Programmed independent study	.103			
(104)	Non-programmed independent study	.061			
6	Regular teacher, 7 to 13 students	.192	6	Summer math experience	.134
(43)	Paid aide, 1 to 10 students	.111	(43)		
	Regular teacher, 14 to 20 students	.076			

*When grade is not listed, there were no service variables that entered the regression equation at or beyond the .05 level.
**Proportion of variance reduction in residualized gain score (i.e., with pretest and previous year's gain taken out) as each new variable in entered in a stepwise regression.